

**U.S. Department of the Interior
Bureau of Land Management
Uncompahgre Field Office
2465 South Townsend Avenue
Montrose, CO 81401**

ENVIRONMENTAL ASSESSMENT RECORD

NUMBER: DOI-BLM-CO-S050-2008-0001 EA

PROJECT NAME: Paonia Area Fuels Treatment

TYPE OF PROJECT: Vegetation treatment project to reduce hazardous wildfire fuels

PLANNING UNIT: Uncompahgre Basin Planning Area

LEGAL DESCRIPTION: In Delta County, Colorado. The Public Lands Within:
Township 13 South, Range 91 West, Sections 5, 8, 17, 19, 20, 28, 30, & 33
Township 13 South, Range 92 West, Sections 25, 26, 35, & 36

APPLICANT: Bureau of Land Management, Uncompahgre Field Office

BACKGROUND: Following a devastating wildfire season in 2000 then President Clinton asked the Secretaries of Agriculture and Interior to assess and develop recommendations on how to reduce the impacts of fire on rural communities, and ensure sufficient firefighting resources in the future. The Secretaries issued a report: "Managing the Impacts of Wildfires on Communities and the Environment: A Report to the President in Response to the Wildfires of 2000," dated September 8, 2000. This report listed several actions federal agencies could take to reduce wildfire hazards to communities in the wildland-urban interface and increase firefighting capabilities.

In the 2001 and subsequent Appropriations Bills approved by Congress, funding has been provided to the BLM and other agencies to reduce wildfire hazards to communities and subdivisions. Additionally, we have been directed to manage fire and resources together to protect people, natural resources and property, and to restore forests, wildlife habitat, and rangeland health.

In accordance with the report and subsequent laws and directives the Uncompahgre Field Office, Bureau of Land Management (BLM) is proposing a series of fuel reduction actions near Paonia (described below) to minimize the threat of wildfire to some private residences by reducing fuels such as trees and brush. BLM fire and fuels specialists worked with the Paonia Fire Chief to identify high priority sites on BLM land that are adjacent to private lands with residences or power lines where there is a threat from wildfire. The team identified areas where fuels

treatments on the BLM land would help slow the spread or reduce the intensity of a wildfire that might burn onto private lands.

All of the proposed treatment sites are adjacent to private land with residences. In the areas near the residences, there are stands of extremely thick juniper with a cheatgrass understory and if a wildfire burns through these areas, it will be extremely difficult to control. However, it does need to be stated, that even with treatments, any fire may be difficult to control and should a wildfire start under hot, dry and windy conditions, that fire may be uncontrollable and produce spot fires in excess of one mile away from the main body of the fire.

Background on Cheatgrass and treatment with Plateau Herbicide

Cheatgrass is a non-native winter annual that was introduced to this country in the early 1860's. Cheatgrass expansion has dramatically changed fire regimes and plant communities over vast areas of western rangelands. This change has created an environment where fires are easily ignited, spread quickly, cover large areas, and tend to reoccur more frequently. These changes in fire regime and plant communities tend to move ecosystems toward a more annual type system that tend to support annual invasive noxious weeds. Ecosystems dominated by cheatgrass support lower numbers of wildlife, less domestic grazing, increase erosion, and can set the stage for invasion by other exotic species (medusahead, *Taeniatherum caput-medusae*; jointed goatgrass, *Aegilops cylindrical*; yellow starthistle, *Centaurea solstitialis*; spotted knapweed, *Centaurea maculosa*). Herbicide treatment along with reseeding native plants slow cheatgrass invasion and facilitate native species establishment.

Ammonium salt of imazapic (Plateau®) is an herbicide that has recently been approved for use by federal agencies on public lands to combat invasive/noxious weeds. This herbicide is of particular interest due to its ability to curtail cheatgrass growth over multiple growing seasons while having minimal to no effect on many native perennial grasses, forbs and trees at the rates proposed. Imazapic is a pre-emergent and post-emergent herbicide that controls weeds by inhibiting the plant-specific enzyme, acetohydroxyacid synthase, which is involved in the synthesis of three specific amino acids: isoleucine, leucine and valine. This inhibition disrupts protein synthesis and subsequently interferes with DNA synthesis and cell growth (BASF 2003b). Imazapic is readily absorbed through leaves, stems, and roots and is translocated rapidly throughout the plant, with accumulation in the meristematic regions where growth originates. Treated plants stop growing soon after spray application. Chlorosis appears first in the newest leaves, and necrosis spreads from this point. In targeted perennial species that the label identifies as appropriate for treatment, the herbicide is translocated into the underground storage organs which prevent regrowth (BASF 2006). As a post-emergent herbicide, complete kill of susceptible plants may not occur for several weeks after application. As a pre-emergent herbicide, seeds susceptible to the herbicide fail to germinate and/or seedlings fail to establish. This herbicide is intended for terrestrial use only, therefore there would be a minimum of a 100 foot buffer between perennial waters, and areas of application.

Imazapic has limited horizontal mobility in soil, and generally moves just 6 to 12 inches, although it can leach to depths of 18 inches in sandy soils. Soil binding (adsorption) is a complex function of soil pH, texture, and organic matter content. Imazapic adsorption to soil

may increase with time and field studies do not indicate any potential for imazapic to move with surface water. Imazapic does not volatilize from the soil surface and photolytic breakdown on soils is negligible. The major route of imazapic loss from soil is through microbial degradation (WSSA 2007; American Cyanamid 2000).

Ecological risk assessments (ENSR 2005 and BLM 2007) indicate that Plateau, when applied as directed, both at typical and maximum rates, has no toxic effect, either acute or chronic, on terrestrial vertebrates, birds, mammals, fish or aquatic invertebrates (including pond and stream systems), or terrestrial invertebrates. The assessments examined imazapic toxicity, both direct and indirect paths, at multiple trophic levels, and for various animal groups. Example study scenarios included direct contamination via spraying, dermal contact with contaminated vegetation, ingestion of contaminated vegetation, and ingestion of contaminated vertebrate and invertebrate prey. With appropriate protection buffers, imazapic applications have no effect on rare plants. Using surrogate species for tests, ecological risk assessments were designed specifically to evaluate toxicity on federally threatened, endangered, and proposed species. These data indicate that, when applied as directed, imazapic is biologically safe. Refer to the previously noted publications for more details on this subject.

Imazapic is not considered carcinogenic, teratogenic, or mutagenic. The U.S. EPA has classified imazapic as a “Group E” compound, or one that has not shown evidence of carcinogenicity in humans, based on studies with rats and mice (WSSA 2007; American Cyanamid 2000).

PURPOSE AND NEED

The proposed action reduces hazardous wildland fuels and the potential for a catastrophic fire within the vicinity of the project area. It also maintains or achieves the Colorado public land health standards.

All of the proposed treatment sites are adjacent to private land with residences, with the exception of the proposed treatment along the power transmission lines east of Paonia, which will not be considered for treatment in this document. In some of the areas near the residences, there are stands of extremely thick juniper with a cheatgrass understory and if a wildfire burns through these areas, it will be extremely difficult to control. Should an out-of-control wildfire approach, for example the Fire Mountain Subdivision, in all likelihood, property will be lost, and the lives of families, firemen, and pets will be at extreme risk.

The need for this action is to reduce this risk to lives and adjacent property.

DESCRIPTION OF THE PROPOSED ACTION and ALTERNATIVES

PROPOSED ACTION:

The purpose of the proposed action is to reduce fuels enough to give fire fighters a better opportunity to control a wildfire on the BLM lands before it crosses onto private land and

threatens homes, and lives. The proposed action to reduce fuels is in line with National Fire Plan goals and objectives and is being pursued by the BLM as a National Fire Plan effort. This fuel reduction project would reduce the risk of fire ignitions, would lower wildfire intensity, and would lower the risk of sustained crown fire.

The Proposed Action for the sites near the residences would include thinning the juniper to a specified distance (see “individual actions” below) to reduce the threat of a crown fire moving through the trees. It would also include trying to kill or at least reduce the cheatgrass density and reestablishing a more fire tolerant desirable and diverse vegetative community that is capable of meeting Colorado Public Land Health Standards for vegetative communities and soils.

Individual Actions (see the map on the next page):

Proposed Paonia Area Fuels Reduction Project



Legend

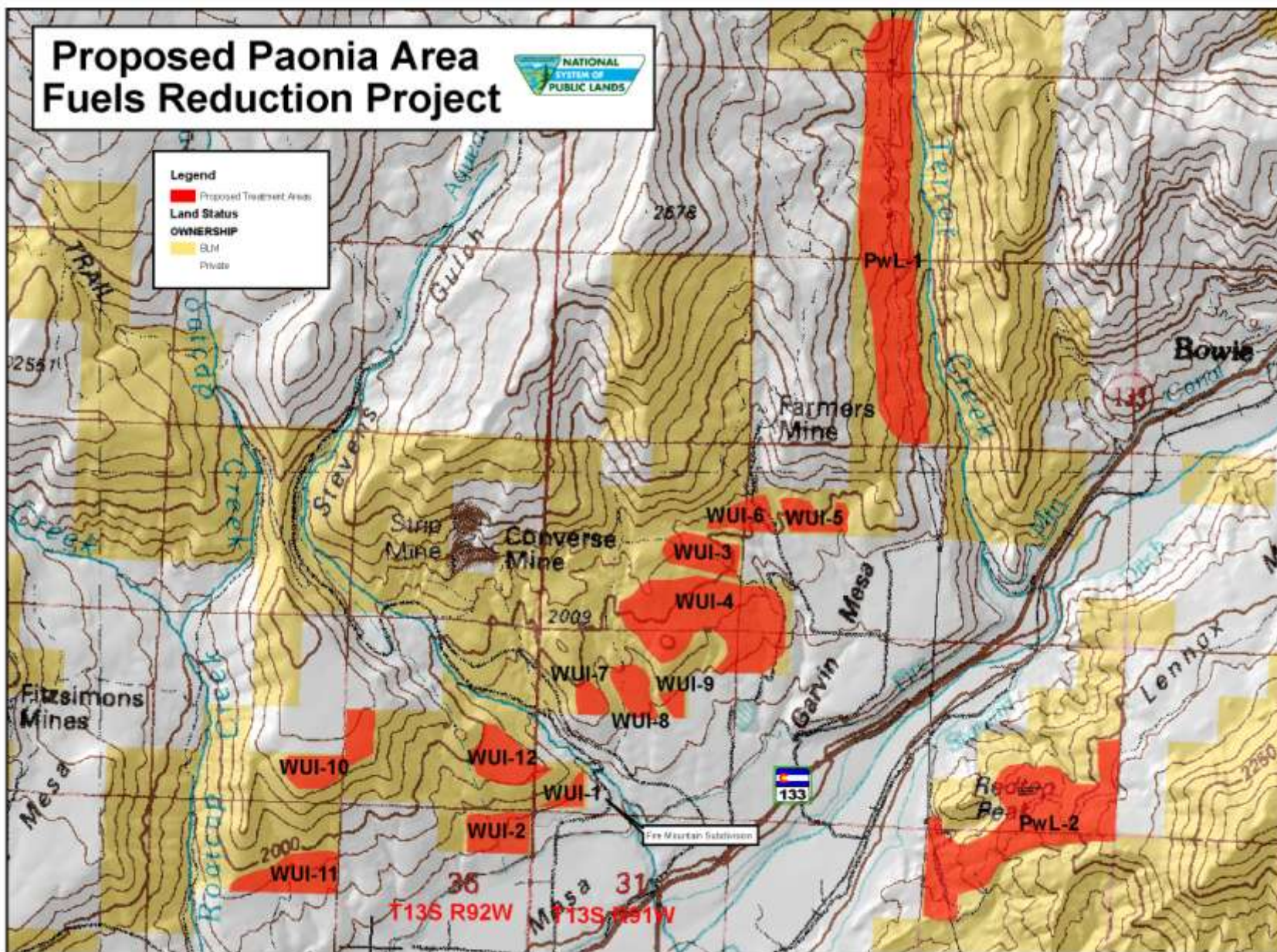
Proposed Treatment Areas

Land Status

OWNERSHIP

BLM

Private



1:40,000

0 0.5 1 2 Miles

Highest Priority Areas

WUI-1 (12.2 acres)

1) Hand thin, in summer or early fall, to 15 to 20 foot spacing between crowns and pile any resulting slash. Hand pile any dead or down wood. (If there is substantial interest by the home owners in collecting the resultant wood for firewood, make available to interested parties by not piling boles for burning.) 2) In early fall use a ground application with either backpack sprayers or hoses from trucks, with Plateau herbicide at 4oz/acre to treat cheatgrass within the hand thin area. 3) In late fall/early winter aerially seed the hand thinning area with the native seed mix shown in the appendix D. 4) Burn hand piles. 5) Non-mechanically (i.e. handseed) reseed the spots where the burn piles were located. 6) Randomly install a minimum of four 1m² wildlife enclosures to monitor success of herbicide treatment and seeding following treatments. 7) Retreat cheatgrass with Plateau Herbicide only if monitoring indicates that retreatment is necessary two falls after initial treatment with "spot" treatments by hand.

The thinning needs to create a mosaic. The thinning mosaic would reduce the basal area of Juniper to approximately 40 to 60 Basal Area Feet (BAF). 40 to 60 BAF is approximately 15 to 20 feet spacing between individual tree crowns if all the trees were uniformly planted as if in an orchard. The resultant thinning would leave between 80 and 100 trees/acre larger more mature trees would be favored for retention. However, do not thin to create an "orchard effect", instead attempt to create clumps, openings, or individual trees where the average per acre is 40 to 60 BAF (approximately 80-100 trees/acre) depending on the location.

WUI-2 (43.8 acres)

Secure an agreement with the Colorado State Forest Service and the private property owner to jointly treat the public and private lands together under the "Wyman Amendment" provisions that allow for the use of Federal Funding to be used on non-federal land where inclusion of that land greatly enhances work on public land.

If concurrence with deeded owner(s) in extreme NW corner of Section 31; treat WUI-2 the same as WUI-1. Hand thin (summer/early fall), pile then seed the east edge of the juniper stand and mechanically thin the remainder of the unit with either a rotary shaft or horizontal shaft mulching type machine. After seeding, but before autumn, mechanically create thinning mosaic with approximately 40 BAF. This treatment area is very broken with gullies, so linear "leave islands" should be expected.

If there is no concurrence with the owner(s) of the private land; aerially seed public land prior to initiating mechanical thinning. Create thinning mosaic with 25 to 35 BAF (approximately 30-40 foot crown spacing). The treatment area is very broken with gullies, so linear "leave islands" where mechanical treatment is neither safe nor environmentally sound should be expected. In either case, monitor the treatment units for seeding establishment and presence of cheatgrass the following fall. If monitoring suggests the presence of cheatgrass at greater than 15% cover then the treatment unit would be aerially sprayed with Plateau Herbicide at 4oz/acre using a helicopter

to ensure accurate application rate and to minimize off site drift. Gullies and untreated islands would be avoided to ensure that herbicide does not reach open water systems and or riparian vegetation communities. Additionally, the existing tree canopy would intercept the herbicide and prevent it from reaching the ground and thus limit its effectiveness.

WUI-1 and a portion of WUI-2 would be hand thinned therefore there would be no seed incorporation into the soil and the lack of a mulch bed to provide the benefits for seed establishment. Without a reduction in competition from cheatgrass these units would have to be treated with herbicide to provide an opportunity for seedling establishment. Thinning and applying herbicide in the late summer and then seeding in the late fall or early winter on these units would allow for the herbicide to reduce the cheatgrass composition and diminish in potency prior to seeding. This methodology should allow germinating seedlings to establish without diminished fitness from the herbicide the following spring.

WUI-3 (45 acres)

Aerially seed site with native seed mix described in appendix D. 2) Using mechanical equipment create thinning mosaic with 35 to 40 feet of basal area creating a non-orchard effect described in WUI-1. Include in the “thinning area” clearings of up to 5 acres (not to exceed 20% of the area) and non-treatment areas up to 5 acres. The non-treatment areas on operable slopes are not to exceed 20% of the area, realizing that the treatment area is very broken with slopes and gullies so additional linear "leave islands" where mechanical treatment is neither safe or environmentally sound should be expected. 3) Monitor the treatment unit for seeding establishment and presence of cheatgrass the following fall. If monitoring suggests the presence of cheatgrass at greater than 15% cover then the treatment unit would be aerially sprayed with Plateau Herbicide at 4oz/acre using a helicopter to ensure accurate application rate and to minimize off site drift. Gullies and untreated islands would be avoided to ensure that herbicide does not reach open water systems. Prior to herbicide application ascertain how close the nearest “organic” farm producer is located and ensure appropriate buffers are adhered to so that BLM actions do not jeopardize the land owner’s organic agricultural status or crops. 4) In a non-fuels related activity, begin/continue cleanup of the “defacto” public dump in this WUI Unit.

WUI-4 (200 acres)

1) Aerially seed site with native seed mix identified in appendix D. 2) Using mechanical equipment create thinning mosaic with 25 to 35 feet of basal area creating a non-orchard effect described in WUI-1. Include in the “thinning area” clearings of up to 5 acres (not to exceed 20% of the area) and non treatments areas up to 5 acres. The non-treatment areas on operable slopes are not to exceed 20% of the area, realizing that the treatment area is very broken with slopes and gullies so additional linear "leave islands" where mechanical treatment is neither safe or environmentally sound should be expected. 3) Monitor the treatment unit for seeding establishment and presence of cheatgrass the following fall. If monitoring suggests the presence of cheatgrass at greater than 15% cover then the treatment unit would be aerially sprayed with Plateau Herbicide at 4oz/acre using a helicopter to ensure accurate application rate and to minimize off site drift. Gullies and untreated islands would be avoided to ensure that herbicide

does not reach open water systems. Prior to herbicide application ascertain how close the nearest “organic” farm producer is located and ensure appropriate buffers are adhered to so that BLM actions do not jeopardize the land owner’s organic agricultural status or crops.

WUI-5 (Acres 30)

1) Aerially seed site with native seed mix the south most 100 meters. 2) In area seeded, mosaic thin juniper overstory to 40 BAF with horizontally mounted rotary cutter. 3) Monitor the treatment unit for seeding establishment and presence of cheatgrass the following fall. If monitoring suggests the presence of cheatgrass at greater than 15% cover then the treatment unit would be aerially sprayed with Plateau Herbicide at 4oz/acre using a helicopter to ensure accurate application rate and to minimize off site drift. Gullies and untreated islands would be avoided to ensure that herbicide does not reach open water systems. Prior to herbicide application ascertain how close the nearest “organic” farm producer is located and ensure appropriate buffers are adhered to so that BLM actions do not jeopardize the land owner’s organic agricultural status.

Lower Priority Areas

WUI-6 (Acres 30)

After seedling establishment in WUI - 1, Aerially seed site with native seed mix the east and south most 100 meters. In areas seeded treat with prescription in Unit 5.

WUI-7 (Acres 10)

Seed using identified seed mix on this cheatgrass dominated site. Create thinning mosaic with 30 feet of basal area (very open). Monitor the treatment unit for seeding establishment and presence of cheatgrass the following fall. If monitoring suggests the presence of cheatgrass at greater than 15% cover then the treatment unit would be aerially sprayed with Plateau Herbicide at 4oz/acre using a helicopter to ensure accurate application rate and to minimize off site drift. Gullies and untreated islands would be avoided to ensure that herbicide does not reach open water systems. Prior to herbicide application ascertain how close the nearest “organic” farm producer is located and ensure appropriate buffers are adhered to so that BLM actions do not jeopardize the land owner’s organic agricultural status. Treat no sooner than two growing seasons after WUI-1 to ascertain success.

WUI-8 (Acres 30)

Lower priority Area: Treat with prescription in WUI 7.

WUI-9 (Acres 20)

Lower priority Area: Treat with prescription in WUI 7.

WUI-10 (Acres 60)

Lower priority Area: Treat with prescription in WUI 7.

WUI-11 (Acres 60)

Lower priority Area: Access to all areas in this treatment unit is through deeded property and dependent on those property owners. As access is allowed, treat with prescription in WUI 7.

WUI-12 (Acres 50)

No activities planned. (It was identified in the original scoping for treatment and included here only for continuity.)

PWL-1 (300 acres)

No activities planned. (It was identified in the original scoping for treatment and included here only for continuity.)

PWL-2 (250 acres)

No activities planned. (It was identified in the original scoping for treatment and included here only for continuity.)

Design Features:

- All property owners adjacent to BLM managed lands would be notified prior to any herbicide treatment.
- If treated, the project areas would be rested from livestock grazing for at least two growing seasons following any phase or year of project implementation. This rest would be coordinated with the permittee as to not negatively affect his ranching operation. This would promote establishment of the grass and forb seedlings.
- A Cultural Resource Inventory, appropriate for the work, would be completed prior to project implementation. All sites identified and recorded. These sites would be incorporated in “leave area” mosaics where larger untreated areas would remain following completion of the project.
- Sensitive Plants:

The project area contains potential habitat for Colorado desert parsley and Montrose bladderpod. (Refer to Appendix B for more details.) Where suitable habitat occurs, surveys would be conducted, prior to initiating the project, for these species within affected areas according to BLM protocol. Botanical clearances expire three years from the original survey date.

Surface disturbing activities would not occur within 100 meters of known BLM sensitive plant populations. For smaller or less intensive treatments or activities (i.e., vegetation trimming, handtool work, etc. as determined by a BLM biologist), ground disturbing

activities would not occur within 50 feet of known BLM sensitive plants. These buffer standards may be modified—either expanded or contracted—by the BLM biologist where site characteristics and conditions warrant.

The following buffers are based on the ecological risk assessment standards and recommended buffers provided in the *Biological Assessment for Vegetation Treatment for BLM Lands in 17 Western States* (BLM 2007). Recommended buffers provided in that document were designed specifically to protect federally threatened, endangered, and proposed species. Therefore, these buffers should also be adequate for sensitive status plants. Ground application, broadcast spraying of Plateau (imazapic) herbicide would not occur within 25 feet of known BLM sensitive plants. Where aerial, helicopter application of Plateau is necessary, treatment would not occur within 100 feet of sensitive plants. Ground-level spot treatments may occur within these buffers provided adequate precautions are taken to avoid impacts on species, as determined by the BLM biologist. These buffer standards may be modified—either expanded or contracted—by the BLM biologist where site characteristics and conditions warrant.

- Maximize the retention of, and/or enhance, mountain sagebrush stand cover and structure for sagebrush obligates such as Brewer's sparrow and other passerines.
- To protect wintering big game, bald eagles, and crucial habitats, no surface disturbing activities shall occur from December 1 through April 30.
- Raptors:

To protect breeding and nesting raptors, a raptor survey shall be conducted for all proposed surface disturbance and treatments. Surveys shall follow BLM UFO standard protocol and shall be conducted as close in time as possible prior to construction/ surface disturbance. Survey reports, data, and determinations shall be submitted to the BLM biologist for review. Survey clearances expire May 1 of the following year. If any raptor nests or breeding birds are encountered during treatments, operations would cease immediately, and a BLM biologist would be notified.

Seasonal restrictions: During the period from nest territory establishment to dispersal of young from nest (based on species known breeding periods), surface disturbing activities and aerial herbicide applications shall not occur within .5 mile of active, special status raptor nests (e.g., peregrine falcon), or .25 mile of active, non-special status raptor nests (e.g., golden eagle). If nest status is unknown (i.e., we have no recent data on nest use), the standard buffer and restriction period would apply during the appropriate breeding season for the species of interest. If said nest is deemed non-functional or inactive, based on at least two consecutive years of monitoring, the above seasonal restriction would not apply.

Spatial restrictions: Mechanical treatments shall not occur within 1/4 mile of functional nest sites of special status raptors, or within 1/8 mile of functional nest sites of non-special status raptor species. For herbicide applications, spot treatments are recommended within these same buffers although, where necessary, broadcast application may be permitted outside the breeding season, provided nest substrates and surrounding habitat structure are

not adversely modified. The BLM biologist would be consulted in these cases.

- To protect migratory bird populations, no vegetation treatments shall occur between May 15 and July 15. Retain and avoid modifying identified cavity trees in the area.
- To the extent possible, any observed reptiles or amphibians would be avoided by treatment activities and would not be intentionally harmed.
- The BLM Hazardous Material Coordinator would be contacted in the event there are any Hazardous Materials spills during project implementation, and hazardous materials would be cleaned up utilizing standard haz-mat procedures.
- Machines and associated equipment would be required to have all dirt and debris that could contain weed seeds removed then thoroughly washed with a suitable power washer, prior to working on the project. An inspection of the equipment would occur prior to commencement of the project to determine cleanliness and power washing of equipment post treatment should occur, on site if possible or a commercial facility, to reduce the spread of weeds or unwanted seeds from being spread onto travel routes.
- In addition to treating cheatgrass, a comprehensive weed survey should occur before initiation of the project. If noxious weeds are found they should be treated to deter the spread of noxious weeds across the landscape. If Canada thistle, whitetop, Russian knapweed or any noxious perennial becomes established they should be spot treated with herbicide. Additionally, if houndstongue, or biennial thistles become established in small ($\leq 1/10$ acre) isolated patches they can be pulled manually or if patches exceed $1/10$ th acre herbicide would be more appropriate.
- Existing roads and trails would be utilized as much as possible. All disturbance associated with project implementation, including access trails, would be scarified, reseeded with the native seed mix, and have physical barriers such as tree branches and or boulders placed at existing routes to avoid the creation of new unauthorized routes.
- All vegetation treatment activities (tree removal) shall be kept at least 20' away from riparian vegetation that may be encountered in the treatment polygons.
- Only lands managed by the Bureau of Land Management would be treated with herbicide.
- Only federally registered herbicides would be used.
- Herbicides would be applied as per label instructions and restrictions.
- The intake operation of water for mixing would be arranged so that an air gap or reservoir would be placed between the live water intake and the mixing tank to prevent back flow or siphoning of chemical into the water source.
- For all private lands, open water, and riparian area associated with the project areas, a

minimum buffer strip of 100 feet would be provided for aerial spraying. Any deviations must be in accordance with the label for the herbicide.

- GPS files of the project areas would be provided to the selected contractor, these files would then be loaded into the required aircraft GPS to ensure accuracy of application, before application of herbicide is allowed to begin.
- To minimize drift, application of all herbicides would be confined to periods when wind speed is less than 5 miles per hour. Application would not occur during precipitation, or if there is a threat of precipitation within 24 hours.
- To further limit the potential for damaging aquatic habitats, application equipment and calibrations (i.e. spray pressure and droplet size) must be selected to deliver sprays which minimize atomized drift in situations where herbicide could potentially contact surface waters, such as stock reservoirs (regardless of 5 mph guideline).
- During preparation of the Pesticide Use Proposal, the project area would be reviewed for known populations of plant species of special concern or their potential habitats. Areas containing sensitive plant habitat with a good likelihood of containing sensitive plants would be avoided by herbicidal control. Manual control (pulling weeds) would be the preferred method of control. Potential habitats would be inventoried for absence of sensitive plants prior to any herbicidal use should manual control prove ineffective.
- All individuals associated with the handling or application of herbicides on public lands would be working under the direction of a certified pesticide applicator and would be familiar with the chemical used and emergency procedures to be used in case of herbicide spill.
- The applicable Federal regulations concerning the storage and disposal of herbicides and herbicide containers would be followed. These are described in the EPA's "Regulations for acceptance and Procedures for Disposal and Storage", Federal Register notices as amended.
- It is essential to prevent damage to containers so that leaks do not develop; care would be exercised so that containers would not be punctured or ruptured, and so that the lids or caps would not be loosened.
- Precautions would be taken in the loading and stacking of herbicide containers in the transporting vehicle to assure that they would not fall as the vehicle moves.
- Open containers would not be transported. Partly empty containers would be securely re-sealed before transportation.
- Mixed herbicide would not be transported by ground based vehicle.
- Each day after returning to the field office, all herbicide containers would be inspected for damage and leaks, and the vehicle would be examined for contamination.

- An approved burn plan would be completed prior to burning the slash piles generated in WUI-1.
- A Colorado State smoke permit would be obtained prior to implementing any phase of a prescribed fire.
- Access where no “public access” exists would be by requesting permission from the private landowner. Access holders would be contacted and access needs would be coordinated with the respective access holders. All rights-of-way holders would be contacted and coordinated with prior to any fuels reduction activities occurring. All necessary precautions would be taken in order to protect the rights-of-way from any harm.
- No additional AUMs would be made available as a result of successful implementation of the proposed action, additionally no additional approval of water impoundments or salting locations would be authorized to ensure that livestock do not focus on treated areas.

Monitoring:

The completed project would be mapped using a Geographic Positioning System (GPS). A photo point(s) would also be established prior to commencing the project.

Individual enclosures described in the proposed action would be established to ascertain cheatgrass management absent from big game and livestock grazing pressure.

The proposed project would be monitored at intervals (currently 2 years and 5 years following treatment), identified by the Uncompahgre Field Office vegetation treatment monitoring protocol.

Monitor project sites for the spread of weeds, and spot treat as needed for a three-year (minimum) period.

Monitor all areas of soil surface disturbance for signs of accelerated soil erosion. Monitoring would occur for a minimum of three years or until disturbed soils are stabilized by established vegetation.

ALTERNATIVES

No Action. Under the No Action Alternative, treatments would not be implemented to reduce the wildland fire threat. Woodlands and infrastructure would continue to be at risk of damage or destruction by wildfire. It is expected that the project areas would continue on a trend of complete annual and invasive domination, and would therefore not be meeting public land health standards.

ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD

Alternatives specific to woodland thinning:

- Remove only the dead and down wood as opposed to removing live trees.
- Thin the areas identified by removing one fourth to one third of the existing trees by traditional means (hand thinning). Limb up the remaining trees to a height sufficient to remove the risk of ladder fuels catching fire should the understory burn.

These alternatives were considered, but eliminated from further consideration because: Removing only the dead and down wood from the project areas would only slightly reduce the wildland fire risk as it would not change the woodland canopy structure. The canopy would remain essentially unchanged from current conditions and the threat of running crown fire would remain unchanged from the current situation. The current tree stocking of the woodlands proposed for treatment average between 75 and 80 basal area feet/acre or roughly 300-400 trees/acre. The recommendation to only remove one fourth to one third of the existing trees by traditional means has been incorporated into the prescription for WUI-1 and a portion of WUI-2 directly adjacent to the Fire Mountain Subdivision as identified in scoping for aesthetic purposes. To conduct this prescription across the entire project area would fail to achieve the appropriate canopy spacing necessary to effectively slow and or prohibit significant crown fire spread given the prevailing winds and topography in the project area.

Additionally, hand thinning the entire project area would cost 60% more than mechanically treating the units identified. Hand thinning would require that slash generated be either chipped or burned. Chipping would require vehicular access by truck and trailer requiring additional route development. Burning the amount of slash generated by removing only $\frac{1}{4}$ - $\frac{1}{3}$ of the slash generated would be prohibitive given the State of Colorado's limitations on the amount of smoke generated in a given burn period during the seasons when pile burning is safest to conduct. On average it takes about two years to burn the slash generated from nine acres of thinning, just treating the high priority areas in this fashion would take approximately 40 years. If this activity slash is not removed or broken down then the fuels situation would be exacerbated as these piles and or scattered slash would act as receptors for falling embers in a fire event greatly accelerating fire spread and increasing the resistance to control. Additionally, the smoke generated from burning that much slash would have a greater impact on air quality in and around the project area for a greater period of time.

Limbing the woodland as a part of the treatment would have a limited effect on reducing fire behavior within the project area as 90% of the woodland composition is juniper. The flammable nature of the bark associated with juniper makes the species very susceptible to fire transition into the crown regardless of the crown base height from surface fuels. This is evident when looking at the fire ecology of the woodland cover type. Under natural conditions juniper experiences a stand replacement fire event, unlike ponderosa pine and other fire tolerant species where there is a frequent fire cycle and the trees have evolved a thick fire resistant bark that can withstand frequent under burning.

Alternatives specific to cheatgrass management:

- Use labor intensive non-chemical means to reduce cheatgrass, such as hand pulling in the fall.
- Use other means of cheatgrass control such as concentrated vinegar or sucrose to manage the cheatgrass.

These alternatives were considered, but eliminated from further consideration because: Hand pulling small infestations before seeds are produced may eliminate current seed production. However, the infestation may not be eliminated and hand pulling would have to be repeated for several consecutive years to exhaust seed bank reserves. Given the acreage proposed for treatment and the level of cheatgrass infestation within the identified treatment units hand pulling cheatgrass is neither realistic nor economically viable.

The use of sugar (sucrose) to control cheatgrass has been experimented with greatly in the Great Basin with little success. A recent study conducted by researchers with the Agricultural Research Service (ARS) found that “In the first year after seeding, sucrose reduced cheatgrass density by 35%, and decreased cheatgrass biomass by 67%. These effects were transitory, and by the second year after seeding there was a 7-fold increase in cheatgrass density.” (Mazzola et al 2008) Such research suggests that this method may increase cheatgrass densities or is at best ineffective at controlling cheatgrass populations over the long term.

The Uncompahgre Field Office has conducted experiments on cheatgrass utilizing acetic acid (vinegar) in the Stucker Mesa area between April 2007 and September 2008 following the Stucker Mesa Fire. The experiments compared no spraying, glyphosate (Roundup), and acetic acid. The experiments showed that one year post treatment there was a 76% increase in cheatgrass cover in the acetic acid treatment area, the no spray area showed a 59% increase in cheatgrass cover, and the glyphosate treatment showed a 31% decrease in cheatgrass cover. It appeared that the acetic acid only burned the above ground biomass and did not kill the root system of the cheatgrass so individuals were able to return with some vigor after moisture events post treatment. This work suggests that vinegar is not a viable method to control cheatgrass following the proposed vegetation treatments.

SCOPING ISSUES AND CONCERNS:

In late 2005 then Paonia Fire Chief Ron Rowell suggested that the BLM consider implementing some fuel mitigation in the Paonia area to address concerns that the fire department had. The BLM and Chief Rowell identified the areas of greatest need and developed an initial proposal. BLM then initiated scoping with the residents and community members in the area in February 2006. All residents within 1 mile of the identified areas were contacted. Substantial comment was received regarding the project and as a result the BLM, Paonia Fire Department, and Delta County held a public meeting on April 13, 2006 to discuss the issues and concerns generated. A field trip to the project area was also conducted for interested parties on June 16, 2006 to further address concerns. The Delta Independent also published an article in the local paper regarding the project on March 1, 2006.

In general, issues and concerns centered on herbicide application, especially near subdivisions, housing developments, organic farms and other sensitive areas. Other identifies issues were the level of tree thinning and the impacts that would have on viewsheds, erosion, and OHV.

BLM released a draft version of this document to the public for additional comment on April 28, 2010. A total of five responses were received. The comments and response to comments are located in Appendix E of this document.

PLAN CONFORMANCE REVIEW: The proposed action is subject to the following plans:

Name of Plan: Uncompahgre Basin Resource Management Plan

Date Approved: July 26, 1989

Page or Decision Number: Page 14 (Management Unit 2).

Decision Language: “The management unit will be managed to improve the areas capabilities to support wintering deer, elk and bighorn sheep populations”, and “Land treatment and erosion control projects will be permitted if they are compatible with wildlife habitat management objectives”, and “The management unit will be available for woodland products harvests”.

Name of Plan: Uncompahgre Field Office Fire Management Plan

Date Approved: May 31, 2002

Page or Decision Number: Decisions D1, D2, C3, C4, and B1

The proposed action has been reviewed for conformance with these plans (43 CFR 1610.5, BLM 1617.3).

RELATIONSHIP TO STATUTES, REGULATIONS, OR OTHER PLANS

Name: Federal Land Policy and Management Act (FLPMA) of 1976.

The Federal Land Policy and Management Act (FLPMA) of 1976 (43 U.S.C. 1701 et seq.: 90 Stat. 2743; P.L. 94-579) directs that the public lands be managed in a manner that will provide food and habitat for fish and wildlife.

Name: National Fire Plan.

The Secretary of Agriculture and Secretary of the Interior, through the National Fire Plan, have directed offices to reduce fuels in order to help reduce the risk of large catastrophic fires. In the current Appropriations Bill approved by Congress and the President, funding was provided to continue implementation of the National Fire Plan. Additionally, BLM has been directed to manage fire and resources together to protect people, natural resources and property, and to restore forest, wildlife and rangeland health. The project is designed to meet these goals.

Name: Sikes Act of 1960.

The Sikes Act provides for the conservation, restoration, and management of species and their habitats in cooperation with State Wildlife Agencies, including the implementation of on-the-ground wildlife habitat improvement, maintenance, and protection programs.

Additional laws governing the management of public lands include the Archeological Resource Protection Act of 1974, National Historic Preservation Act of 1966 as amended (1980), National Environmental Policy Act of 1969 as amended, 1973 Endangered Species Act as amended, Migratory Bird Treaty Act of 1918, the Clean water Act of 1977 as amended, the Colorado River Basin Salinity Control Act of 1984 as amended, and the Clean Air Act of 1977 as amended.

STANDARDS FOR PUBLIC LAND HEALTH:

In January 1997, Colorado Bureau of Land Management (BLM) approved the Standards for Public Land Health. Standards describe conditions needed to sustain public land health and relate to all uses of the public lands. A finding for each standard will be made in the environmental analysis (next section).

Standard	Definition/Statement
#1 Upland Soils	Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, land form, and geologic processes. Adequate soil infiltration and permeability allows for the accumulation of soil moisture necessary for optimal plant growth and vigor, and minimizes surface runoff.
#2 Riparian Systems	Riparian systems associated with both running and standing water, function properly and have the ability to recover from major surface disturbances such as fire, severe grazing, or 100-year floods. Riparian vegetation captures sediment, and provides forage, habitat and bio-diversity. Water quality is improved or maintained. Stable soils store and release water slowly.
#3 Plant and Animal Communities	Healthy, productive plant and animal communities of native and other desirable species are maintained at viable population levels commensurate with the species and habitat's potential. Plants and animals at both the community and population level are productive, resilient, diverse, vigorous, and able to reproduce and sustain natural fluctuations, and ecological processes.
#4 Threatened and Endangered Species	Special status, threatened and endangered species (federal and state), and other plants and animals officially designated by the BLM, and their habitats are maintained or enhanced by sustaining healthy, native plant and animal communities.
#5 Water Quality	The water quality of all water bodies, including ground water where applicable, located on or influenced by BLM lands will achieve or exceed the Water Quality Standards established by the State of Colorado. Water Quality Standards for surface and ground waters include the designated beneficial uses, numeric criteria, narrative criteria, and anti-degradation requirements set forth under State law as found in (5 CCR 1002-8), as required by Section 303(c) of the Clean Water Act.

AFFECTED ENVIRONMENT / ENVIRONMENTAL CONSEQUENCES

CRITICAL ELEMENTS

The following elements are subject to requirements specified in statute, regulation, or executive order and must be considered in all EA's. If the resource or value is not present or is not affected by the proposed action or alternatives, this will be documented as a negative declaration.

AIR QUALITY:

Affected Environment: Class 1 air-sheds in the vicinity of the proposed project include The

West Elk Wilderness, about 10 miles to the southeast, and the Maroon Bells – Snowmass Wilderness, about 20 miles northeast. Communities and subdivisions in the area include the town of Paonia (less than 2 miles to the southeast) and the Fire Mountain Subdivision (directly adjacent to Treatment Unit WUI-1). There are also scattered residences east and south of the project area, with higher population concentrations toward Paonia. Transportation corridors include CO State Highway 133 (less than 1 mile southeast).

Air quality concerns in this region primarily are from the impacts of a recent surge in energy development. In the 1990s, air quality concerns primarily were related to woodstoves and unpaved roads. These “area” sources were addressed in many Western Slope communities and are no longer as significant as the impacts from energy development, including direct emissions, support service impacts and associated growth. Controlled and uncontrolled burns are a significant source of air pollution in the Western Slope Region (CDPHE 2006).

Environmental Consequences

Proposed Action: The mechanical treatment would have little impact on air quality, with any impacts being localized to within 300 feet of the equipment. Localized impacts would be dust and bad fumes from the machine engines, which would contribute to overall short-term air quality degradation. Degradation would terminate each day upon equipment shut-down, as well as upon completion of the project. Generally, enough ground cover remains on site after mechanical treatment to minimize the potential for dust storms during windy events.

The primary impact to air quality from the proposed action would be from prescribed burning of the slash piles. Fire is a natural combustion process that is a potential source of air pollutant emissions. The amount of emissions depends on the size and intensity of the fire, which are determined by meteorological conditions, such as temperature, wind speed, wind direction, types and moisture content of the fuel, mix of vegetation types, and the total mass of combustible material (available fuels loading).

Any impacts to air quality from prescribed burning would generally be short term (<5 hours) and by scheduling the burn under appropriate atmospheric conditions smoke would move away from towns and communities and disperse quickly. Burning would be done only on good smoke dispersal forecasts to mitigate air quality. Any pile burning will be guided by an approved burn plan that identified environmental and fire behavior parameters, as well as a Smoke Permit acquired from the State of Colorado. All standards and permit conditions will be adhered to while burning. If negative smoke impacts do occur during implementation the burn boss would immediately modify the burn to reduce or eliminate the impact.

No Action Alternative: Under the no action alternative, there would be no immediate impacts to air quality. Over time, hazardous fuels would continue to accumulate, as well as the potential for uncontrolled wildfire to release an increased amount of particulates and emissions.

AREAS OF CRITICAL ENVIRONMENTAL CONCERN (ACEC):

There are not any ACECs near the proposed project area. The proposed action would not impact ACECs.

CULTURAL RESOURCES:

Affected Environment: The proposed Paonia Fuels Reduction project is situated within an upland/steppe vegetation zone in which cultural properties are usually represented by hunting camps and other resource extraction sites, limited or short term occupations and historic period sites. The area of this undertaking was inventoried for cultural resource presence in August 2007. This inventory revealed the presence of five prehistoric properties and one historic period site. One of these properties is considered eligible for nomination to the national register and three properties require further evaluation for determination.

Environmental Consequences

Proposed Action: The proposed action has been modified to avoid impacting any of the eligible or need data sites within the project area. Accordingly, a finding of no effect has been made to the SHPO (provision 8C2-b). No known National Register or otherwise eligible properties will be affected by this project.

No Action Alternative: Treatments would not be implemented, therefore there would be no impact to cultural resources.

NATIVE AMERICAN RELIGIOUS CONCERNS:

There are no known or otherwise anticipated Traditional Cultural Properties, Sacred Sites or other Native American Religious Concerns within the proposed treatment area. Should future consultations or projects reveal the presence of such areas; the appropriate acceptable mitigation will be completed.

ENVIRONMENTAL JUSTICE:

Affected Environment: While analyzing a federal action, BLM identifies and addresses, as appropriate, disproportionately high and adverse human health and environmental effects of program, policies, or activities on minority or low income populations. Environmental Justice involves fair treatment, which means that no group of people, including a racial, ethnic, or socio-economic group, should bear a disproportionate share of the negative environmental consequences resulting from a federal action.

Environmental Consequences

Proposed action: The proposed action was developed based on values at risk of wildfire. The

action would not have a disproportionately high or adverse human health or environmental effect on minority or low-income populations.

No Action Alternative: There would not be impacts to Environmental Justice.

INVASIVE, NON-NATIVE SPECIES:

Affected Environment: Known noxious weeds within the proposed project area include cheatgrass (*Bromus tectorum*), Russian knapweed (*Acroptilon repens*), and Canada thistle (*Cirsium arvense*). Noxious weeds known to be established in surrounding habitat are houndstongue (*Cynoglossum officinale*), whitetop (*Cardaria draba*), spotted knapweed (*Centaurea maculosa*), yellow starthistle (*Centaurea solstitialis*), sulfur cinquefoil (*Potentilla recta*), oxeye daisy (*Chrysanthemum leucanthemum*), musk thistle (*Cardus nutans*), bull thistle (*Cirsium vulgare*), and yellow toadflax (*Linaria vulgaris*). The presence of these weeds cross all boundaries and include private, USFS, and BLM.

Cheatgrass is a non-native winter annual that was introduced to this country in the early 1860's. This species was independently introduced several times by accident and once on purpose (university trials) from several areas throughout Europe which accounts for the multiple ecotypes found throughout the Western United States and Canada (Novak et al. 1991; Novak et al. 1993; Novak and Mack 2001). These ecotypes and their phenotypic plasticity account for the adaptability of cheatgrass in various ecosystems from the hot deserts of New Mexico and Arizona to the sage brush steppe areas of the Great Basin and into Canada.

Cheatgrass expansion has dramatically changed fire regimes and plant communities over vast areas of western rangelands. This change has created an environment where fires are easily ignited, spread quickly, cover large areas, and tend to reoccur more frequently. These changes in fire regime and plant communities tend to move ecosystems toward a more annual type system that tend to support annual invasive noxious weeds. Ecosystems dominated by cheatgrass support lower numbers of wildlife, less domestic grazing, increase erosion, and can set the stage for invasion by other exotic species (medusahead, *Taeniatherum caput-medusae*; jointed goatgrass, *Aegilops cylindrical*; yellow starthistle, *Centaurea solstitialis*; spotted knapweed, *Centaurea maculosa*). The Wake fire occurred near this area in 1994 and was heavily invaded by cheatgrass despite reseeding efforts. In 2006 the Stucker Mesa fire occurred within a portion of the Wake fire. This ignition occurred due to a type conversion to annual invasive species mainly cheatgrass. Reseeding occurred and herbicide and chemical treatment trials were completed to slow cheatgrass invasion and facilitate native species establishment without cheatgrass and annual competition; see results on page 13 of this document.

Environmental Consequences

Proposed Action: While disturbances associated with thinning and tree removal are subject to population by invasive noxious weeds, mitigation should result in very few, or short term increases to weed populations in the treatment areas. Herbicide treatment would be the most rapid and cost effective treatment for these species. Cheatgrass however, is another problem.

Herbicide treatments on cheatgrass have been completed throughout the Western United States. The use of imazapic (Plateau®) to suppress cheatgrass in several states has had promising results allowing re-establishment of native vegetation to occur in areas where a vegetation type conversion to annual species would have been likely. Imazapic (Plateau®) studies completed on cheatgrass in Washington, Montana, Oregon, and Utah have demonstrated at the 6oz/ac rate an 82% control rate was noted for up to 9 months (dry sites may see longer control time). This is the expected results if Imazapic (Plateau®) were to be used in this area. This should be, weather permitting, long enough for native perennials to reestablish and stabilize the site without competitive pressure from undesirable invasive annuals. With this said cheatgrass will still be a small component of the site but with the trees thinned and establishment of seeded native species this site should be protected from large catastrophic fires, promote land health and enhance wildlife habitat for the next 10 to 30 years. All label recommendation will be followed if herbicide is applied with this project.

No Action Alternative: Under the No Action Alternative, treatments would not be implemented and the threat of large wildland fire would still exist in areas of urban interface, infrastructure and woodlands. Cheatgrass would continue to be a major player in the ignition of wildland fire in the area and other invasive weeds would still be a problem and concern on the landscape. The no action alternative does not protect communities/infrastructure, or enhance land health standards.

MIGRATORY BIRDS

Affected Environment: Plant communities within the analysis area provide habitats for a variety of migratory bird species. The U.S. Fish and Wildlife Service list of Birds of Conservation Concern was used as to complete this analysis (USFWS 2008, Table 14, p.32, BCR 16 [Southern Rockies/Colorado Plateau]). Appendix C identifies the species from this list which are known or have potential to occur in the UFO and which are protected under the Migratory Bird Treaty Act (MBTA), and assesses their potential for occurring in the project area. Several known golden eagle nests occur in, and adjacent, to the proposed treatments.

Environmental Consequences

Proposed action: Short-term displacement of individuals may occur during treatment. However, such effects are expected to be minimal and short-term. At times, proposed treatments may coincide with the breeding period for one or more of these species. In order to achieve the desired results, some spring treatments may be necessary such as spraying cheatgrass. Nests and/or eggs could be crushed or destroyed by project activities, and young could be killed. Adult birds would most likely avoid areas during treatment. Project design features including the migratory bird seasonal restriction (May 15 – July 15), deer and elk seasonal restriction (Dec.1 – April 30), and raptor nest survey requirements will help protect most breeding birds in the area. Plateau (imazapic) treatments will have no direct effect on migratory birds. Refer to the Threatened, Endangered, and Sensitive Species Section for a detailed discussion on Plateau effects on plant and animal communities.

Following treatments, perch sites, cavity nest sites, and downed woody debris supporting small

mammal prey may be reduced for some bird species. Dead wood supporting an invertebrate food source for foraging birds will be reduced in portions of the project area. Individual wintering and resident birds may be affected by the removal of trees that provide hiding and thermal cover or by the reduction of understory cover from herbicide treatments. Some areas may be temporarily unsuitable for some species as a result of treatments. However, long-term, structural diversity and habitat conditions should improve (see Vegetation section). Treatment design includes creating variable habitat patches, “leave areas”, and mosaics to avoid the savannah-like, or “orchard”, effect. In addition, thinning the overstory would improve tree growth and vigor in remaining trees and improve understory shrubs and herbaceous vegetation, resulting in improved availability of food and shelter for many species.

In summary, based on project design features, the net, long-term result is expected to be beneficial for migratory bird populations. Treatments will occur outside the core breeding season for migratory birds (May 15 through July 15). In the short-term, the proposed action may impact individual birds, but is not expected to have a measurable impact on migratory bird populations or viability on a landscape scale.

No Action Alternative: Without the proposed treatment, current vegetative condition and trends would continue. The potential would remain high for catastrophic, stand-replacing wildfires or vegetation type conversions (i.e., annual-dominated understory). Habitat and species diversity would continue to be limited.

THREATENED, ENDANGERED SPECIES AND SENSITIVE SPECIES (includes findings related to Standard 4):

Affected Environment:

The Endangered Species Act (ESA), as amended (16 U.S.C. 1531-1534) mandates the protection of species listed as threatened or endangered of extinction and the habitats on which they depend. Section 7 of the ESA clarifies the responsibility of federal agencies to utilize their authorities to carry out programs for the conservation of listed species. In addition, federal agencies must consult with the U.S. Fish and Wildlife Service (Service) to ensure that any action authorized, funded or carried out by the agency is “...not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species...”. The Uncompahgre Field Office (UFO) refers to the most current Colorado county list provided by the U.S. Fish and Wildlife Service to analyze the effects of a proposed action on threatened, endangered and candidate species and designated critical habitat for these species. In accordance with *BLM Manual 6840*, the goal of management is to prevent a trend toward federal listing or loss of viability for sensitive species.

Appendix A lists potentially occurring federally status species within the UFO and provides assessments for their occurrence within the project area. No threatened, endangered, or federally protected species or habitats occur in the proposed action area. Likewise, Appendix B identifies species of special management concern that are known or have potential to occur within the UFO along with occurrence assessments for the area. Several sensitive species are known or have the potential to occur in the project area.

Environmental Consequences

Proposed action: Only occurring and potentially occurring species are assessed in this section. The proposed treatments would have “no effect” on the remaining species. Refer to the Vegetation section above for a general discussion of potential impacts of the proposed treatments on vegetation communities. With the appropriate measures, including seeding and weed control as proposed, mechanical and fire treatments will likely result in improved vegetation species diversity, increased habitat edge, recruitment and growth of young vegetation, increased age classes of vegetation, and replacement of less desirable forage species with more desirable species. The results can be beneficial for some species and less so for others depending on the target species’ life history needs (cover, food, space, water). It is generally assumed that more diverse vegetation communities across a landscape, both from a composition and spatial standpoint, translate to more diverse wildlife communities. Treatment design includes creating variable habitat patches and spacing to avoid a savannah-like, or “orchard”, effect. Thinning the overstory would improve tree growth and vigor in remaining trees and improve understory shrubs and herbaceous vegetation, resulting in improved availability of food and shelter for many species.

Treatment activities themselves may have impacts on some species, particularly less-mobile species (i.e., reptiles or plants) unable to avoid proposed treatment areas. These impacts are expected to be short-term and negligible for both terrestrial species (via habitat modification and direct disturbance) and aquatic species (via sedimentation of waterways). Overall, the proposed treatments are expected to improve and expand native habitats and ultimately benefit the majority of these species.

Ecological risk assessments (ENSR 2005; BLM 2007) indicate that Plateau, when applied as directed, both at typical and maximum rates, has no toxic effect, either acute or chronic, on terrestrial vertebrates, birds, mammals, fish or aquatic invertebrates (including pond and stream systems), or terrestrial invertebrates. The assessments examined imazapic toxicity, both direct and indirect paths, at multiple trophic levels, and for various animal groups. Example study scenarios included direct contamination via spraying, dermal contact with contaminated vegetation, ingestion of contaminated vegetation, and ingestion of contaminated vertebrate and invertebrate prey. With appropriate protection buffers, imazapic applications have no effect on rare plants. Using surrogate species for tests, ecological risk assessments were designed specifically to evaluate toxicity on federally threatened, endangered, and proposed species. These data indicate that, when applied as directed, imazapic is biologically safe. Refer to the previously noted publications for more details on this subject.

Treatment activities may disrupt breeding and nesting sensitive birds (Brewer’s sparrow and peregrine falcon), potentially causing nest abandonment. Nest surveys, avoidance measures, and project design features should minimize impacts on these species. Any undetected nests, eggs, or nesting features (trees, substrate, etc.) could be crushed, destroyed, or modified by project activities, and young birds could be killed. Adult birds will most likely avoid areas during treatment. Outside the bird breeding season, short-term impacts on individuals may occur by disrupting foraging, migrating, and wintering birds. Treated areas may be temporarily unsuitable

for these species. Refer to the Migratory Birds section for additional details on potential effects on these species.

Over the short-term, minimal sedimentation of waterways may occur (see Water Quality section) and may affect sensitive fishes, amphibians, and other species which depend seasonally on these habitats. Improving watershed cover is expected to provide long-term benefits to water quality, aquatic habitats, and aquatic species. No riparian areas would be treated or disturbed under the proposed action. Based on riparian protection buffers and ecological risk assessments (ENSR 2005), imazapic (Plateau) herbicide treatments should have no effect on sensitive aquatic species.

Sensitive bats and reptiles may be temporarily impacted by treatments and habitat conditions. Individuals unable to avoid activities may be injured or killed. The net, long-term effect is expected to be beneficial for these species by restoring native vegetation cover and mitigating the risk of catastrophic fire.

Project activities may inadvertently crush or kill sensitive plants and degrade or fragment habitats. Herbicide treatments may inadvertently harm undetected sensitive plants, although none are known to occur in proposed treatment areas. Botanical surveys and avoidance measures for both surface disturbance and weed treatments (see Design Features) will minimize impacts on these species.

Based on the above information, project design features, and/or current distribution of species, the proposed action will have “no effect” on the Gunnison sage grouse, Columbian sharp-tailed grouse, western yellow-billed cuckoo, northern goshawk, ferruginous hawk, long-billed curlew, white-faced ibis, and black swift. With project design features, the proposed treatments would have minimal, short-term impacts and “may affect, but are not likely to result in a trend toward federal listing” for the bald eagle, peregrine falcon, Brewer’s sparrow, roundtail chub, bluehead sucker, flannelmouth sucker, sensitive bats, northern leopard frog, canyon treefrog, longnose leopard lizard, midget faded rattlesnake, milk snake, Montrose bladderpod (*Lesquerella vicina*), and Colorado desert parsley (*Lomatium concinnum*). These determinations are based on GIS information, site characteristics, and other currently available data. Field surveys, may determine that either suitable habitat is not present for some species and/ or that species themselves are not present. In that case, proposed treatments would have “no effect” for those species.

No Action Alternative: Without the proposed treatment, current vegetative condition and trends would continue. The potential for a catastrophic, stand-replacing wildfire would continue. Habitat and species diversity would continue to be limited.

Finding on the Public Land Health Standard for Healthy Plant and Animal Communities: The project would have no detectable impact on threatened, endangered, or special status species within the project area. Threatened, endangered, and sensitive species’ habitats would not be greatly affected by the proposed action in the short term. Over the long term, the proposed action should improve habitat conditions for the majority of these species.

WASTES, HAZARDOUS OR SOLID:

Affected Environment: No hazardous wastes are known to exist on the site. Solid wastes exist in the WUI-3 unit and consist primarily of common yard debris, unwanted furniture and household trash.

Environmental Consequences

Proposed Action: Diesel fuel and hydraulic fluid would be utilized during the operation of heavy equipment on site. Drip torch fuel would also be on site. Fuels used to ignite the prescribed fire (if burned at a later date for maintenance) would be used on site, and any fuel remaining would be removed from the site. Only the anticipated amount of fuel required for project completion would be transported to the project site. All materials used on the proposed project would be handled to prevent their accidental release to the environment. Hydraulic fluid is generally contained but the possibility of a broken hydraulic line could exist, in which case a small amount of fluid could leak onto the ground. If any spills should occur, the BLM hazardous material coordinator would be contacted, and hazardous materials would be cleaned up utilizing standard haz-mat procedures. If manufacturer's directions on herbicides are followed, no negative impacts from herbicide use would be expected.

The garbage dump in unit WUI-3 will be collected and disposed of in an appropriate landfill. No hazardous waste requiring special handling and disposal has been observed at this site to date.

No Action Alternative: Treatments would not be implemented therefore, there would be no impact from hazardous wastes.

WATER QUALITY, SURFACE OR GROUND (includes all information related to Standard 5):

Affected Environment: The proposed fuel treatment projects are within the North Fork of the Gunnison, 4th level watershed - Hydrologic Unit Code (HUC) 14020004. The treatment areas drain into North Fork of the Gunnison River via the following tributaries: Roatcap and Terror Creeks, Stevens Gulch and several unnamed ephemeral drainages. Irrigation canals and ditches that contour the sides of the valley could intercept some runoff produced in the ephemeral channels.

The drainages receiving runoff from the subject treatment areas have water quality designations and classifications set by the Colorado Water Quality Control Commission, and are shown in Table W1.

Table W1 Water Quality Designations and Classifications, for Drainages Receiving Runoff from Proposed Treatment Areas.

<i>4th Field Watershed</i>	<i>Stream Segment</i>	<i>Stream Designation</i>	<i>Stream Classification</i>
North Fork of the Gunnison 14020004	Terror and Roatcap Creeks		Aquatic Life Cold 1 ¹ Recreation P ² Water Supply ³ Agriculture ⁴
	Stevens Gulch	UP ⁵	Aquatic Life Warm 2 ¹ Recreation P ² Water Supply ³ Agriculture ⁴
	Unnamed Ephemeral Tributaries	UP ⁵	Aquatic Life Warm 2 ¹ Recreation P ² Agriculture ⁴

1 - Waters are designated either warm or cold based on water temperature regime. Class 1 water's are capable of sustaining a wide variety of cold or warm water biota, while class 2 waters are not.

2 - Recreation P - Potential Primary Contact Use

3 - Waters that are suitable or intended to become suitable for potable water supplies.

4 - Waters that are suitable for irrigating crops usually grown in Colorado.

5 - The Colorado Water Quality Control Commission designates waters of the state, "Use Protected" if they do not warrant special protection provided by the outstanding waters designation or the antidegradation review process.

In addition to the state's water quality designations, classifications, and numeric standards, all surface waters of the State are subject to the Basic Standards (Colorado Water Quality Control Commission), which in part read: state surface waters shall be free from substances attributable to human-caused point or non-point source discharge in amounts, concentrations or combinations that:

1. Can settle to form bottom deposits detrimental to the beneficial uses (e.g. silt and mud).
2. Are harmful to the beneficial uses or toxic to humans, animals, plants, or aquatic life.
3. Produce a predominance of aquatic life.

Stevens Gulch, and Roatcap and Terror Creeks are on the Colorado 303(d) list for impaired water quality. The impairment is excessive Selenium and the priority is rated as "high (CDPHE 2008).

Ground water is limited within the proposed project areas. Some shallow unconsolidated aquifers may exist in the vicinity of the project areas, but discharge in the form of springs or seeps are usually very variable and commonly intermittent. The bedrock geology (Mesaverde formation) in the area dips to the northeast at about 4 degrees, thus most of the project sites are in a potential groundwater recharge area. However, because of the semi-arid environment, little recharge water is available.

Environmental Consequences

Proposed Action: Surface water quality within and downstream of the proposed treatment areas would improve as a result of mechanical treatment. Mechanical treatment results in additional watershed surface cover in the form of ground surface litter and increased grass and forb densities. The increased watershed cover and depression storage from surface disturbance would reduce the potential for surface runoff and soil erosion, minimizing the sediment yield from these areas. The overall increase in watershed cover would begin immediately after the

treatment and slowly increase as the seeding becomes established. In the initial years post treatment, delaying livestock use for 2 years would provide additional benefits to the soil surface and water quality.

In the short term, following any prescribed fire, the proposed burn areas pose a slight risk to increased sediment, nutrient and ash constituent loads in to local surface water systems. Burned areas most susceptible for causing elevated levels of these constituents would be the steeper sites, and within a relatively close proximity to a drainage channel. High intensity precipitation events, capable of transporting sediment or ash constituents are most likely to occur during mid to late summer. Consequently, spring burns would leave the soil surface more prone to accelerated runoff and erosion compared to fall burns. Burning during the fall would allow more vegetation establishment prior to the successive years' thunderstorm season, thereby minimizing the risk to water quality. Over the long term (after 3 years after burning), the burned areas would reestablish effective watershed cover, resulting in increased soil-water infiltration, decreased surface runoff, reduced soil surface erosion, and improved water quality. Best management practices utilized during herbicide applications will negate any impact to surface water. These include no direct spraying of waterways, providing a buffer on non-spraying around waterways and avoiding application during anticipated precipitation events to avoid runoff.

No Action alternative: There would be no impact to either surface or ground water quality.

Finding on the Public Land Health Standard 5 for water quality: The proposed project would enable the site to sustain conditions that achieve Standard 5 of the Public Land Health Standards.

WETLANDS, & RIPARIAN ZONES (includes all information related to Standard 2)

Affected Environment: The vegetation treatments outlined in the Proposed Action are not located in known riparian areas or wetlands. Based on review of the USGS 1:24,000 scale quad maps, the treatment polygons do overlie several ephemeral drainages, some of which may contain riparian vegetation or seeps fed by groundwater or agricultural runoff. However, review of the vegetation map derived from satellite imagery does not indicate the presence of riparian vegetation of any substantial acreage (larger than 2-3 acres) in the treatment polygons. Nevertheless, there is potential for limited amounts of wetland vegetation, which would most likely be made up of cattails, scouring rush, sandbar willow, or narrowleaf cottonwood.

Environmental Consequences

Proposed Action: The Proposed Action will not affect substantial areas of riparian vegetation. If riparian or wetland vegetation is found during project layout, the following mitigation measure will prevent direct damage to the wetland/riparian area: all vegetation treatment activities (tree removal) shall be kept at least 20' away from riparian vegetation that may be encountered in the treatment polygons.

In the event that disturbance from heavy equipment inadvertently occurs, riparian areas are typically very resilient, and quick recovery would be anticipated as a result of the damaged

vegetation re-sprouting. As a result of these characteristics and the above mitigation, no effects to wetlands and riparian zones are anticipated.

No Action Alternative: There would be no impact to wetlands or riparian zones.

Finding on the Public Land Health Standard for riparian systems: There will be no change to the current riparian Health Standard status for this area, because the area has no known intermittent or perennial streams capable of supporting significant riparian systems. Only intermittent or perennial streams are rated for this standard.

WILD AND SCENIC RIVERS

No river segments in the vicinity of the project area have been found “eligible” for inclusion in the National Wild and Scenic River System.

WILDERNESS

There is no Wilderness or Wilderness Study Areas in the vicinity of the proposed project.

FARMLANDS (PRIME OR UNIQUE); FLOODPLAINS; WILD AND SCENIC RIVERS;

There are no known farmlands (prime or unique), floodplains, or wild and scenic rivers within or adjacent to the proposed project area.

NON-CRITICAL ELEMENTS: The following elements must be addressed because they are each an element within the Standards for Public Land Health:

SOILS (includes all information related to Standard 1):

Affected Environment: The dominant soils associated with the proposed project sites and selected physical properties of these soils are shown in Table S1.

Table S1 Dominant Soils associated with the Proposed Action.

Soil Unit	Dominant Soils within Unit	Location	Runoff Potential	Erosion Potential	Soil pH
Absarokee-Work loams, 6 to 25%	Absarokee	Uplands and valley sideslopes	Medium	Moderate	6.7-7.8
	Work			Moderate to High	
Agua Fria stony loam	Agua Fria stony loam	Cobbly and stony outwash alluvium	Rapid	Moderate to High	7.9-8.4
Beenom-Absarokee	Beenom	Mountain sideslopes	Rapid	High	6.1-7.3

association 20-60% slopes	Absarokee	Uplands and valley sideslopes	Rapid	Moderate to High	
Cerro stony loam 10-35% slopes	Cerro stony loam	Landslide deposits and glacial outwash	Medium to Rapid	High	6.6-7.8
Fughes loam 5- 65% slopes	Fughes loam	Alluvial fans and landslide deposits	Rapid to Very Rapid	High	6.6-7.8
Saraton-Agua fria complex 20-50% slopes	Saraton	Sideslopes of mesas	Rapid	Moderate to High	7.9-8.4
	Agua Fria				

Environmental Consequences

Proposed Action: Mechanical treatments result in additional surface cover in the form of ground surface litter and increased grass and forb densities. It is expected that the mechanical treatment will leave small branches and pieces of wood from pencil size up to bowling ball size. The mulch is evenly scattered across the surface and the tires or tracks distribute the weight of the equipment with very low pounds per square inch pressures imparted on the soil surface. This treatment creates minimal surface disturbance. Grasses and forbs are relatively undisturbed and remain viable, which further protects soils from erosion. To protect soil and water quality, operations would not be allowed in muddy conditions. The increased cover and depressions from surface disturbance would reduce the potential for surface runoff and soil erosion. The overall increase in cover would begin immediately after the treatment and slowly increase as the vegetative seeding becomes established.

In the short term following any prescribed fire, the proposed burn areas pose a slight risk to increased erosion. High intensity precipitation events, capable of erosive forces are most likely to occur during mid to late summer. Consequently, spring burns would leave the soil surface more prone to accelerated runoff and erosion compared to fall burns. Burning during the fall would allow more vegetation establishment prior to the successive years' thunderstorm season, thereby minimizing the risk of erosion. Over the long term (after 3 years after burning), the burned areas would reestablish effective watershed cover, resulting in increased soil-water infiltration, decreased surface runoff, reduced soil surface erosion, and improved water quality.

No Action Alternative: There would be no impacts to the soil resource.

Finding on the Public Land Health Standard 1 for Soils: The proposed project would enable the site to sustain conditions that achieve Standard 1 of the Public Land Health Standards.

HYDROLOGY AND WATER RIGHTS

See the "Water Quality, Surface or Ground" section.

VEGETATION (includes findings related to Standard 3):

Affected Environment: The project area is dominated by juniper (*Juniperus osteosperma*) comprising over 80% of the total tree cover, piñon pine (*Pinus edulis*), with some sagebrush (*Artemisia tridentata* ssp. *Wyomingensis*) and mountain mahogany (*Cercocarpus montanus*) present in the more open spaces, sandberg bluegrass (*Poa sandbergii*), and a minority of other native grasses and forbs. Much of the herbaceous understory is dominated by cheatgrass (*Bromus tectorum*), tall tumble mustard (*Sisymbrium altissimum*), pale madwort (*Alyssum alyssoides*), purple mustard (*Chorispora tenella*), and other annual species.

The Land Health Assessment for the North Fork Area classified the majority of the units identified for treatment as not meeting or meeting with problems for standard 3 vegetative communities. Of the 1132 acre project area 37% of the area met land health standards with problems for vegetative communities, 58% did not meet standards, and 5% either met standards or was not classified. Problems identified included low diversity and composition of perennial cool and warm season grass species, lack of forbs, expanding and or infilling piñon juniper woodlands, and presence of exotics at too high cover and composition to allow for successional and ecosystem processes. (BLM 2007)

Table 1 Land Health rating for the Proposed Project Area (includes units where no action is proposed)

STANDARD 3	Acres
Meets	33.1
Meets with Problems	443.1
Not Meet	682.2
Not Evaluated	23.6

Under natural conditions the juniper woodlands within and adjacent to the project area have evolved with successional processes that begin with stand initiation in the early seral stage where the site would develop a diverse grass forb community. Stand initiation events occur at the landscape level from insect outbreaks, disease, fire, or at the stand level from human management/uses or landslides. Further successional development in the mid-seral stage would include a sagebrush, grass, and forb community with varying levels of tree cover, usually less than 10% tree canopy cover. Successional development continues as the stand infills and matures to the late seral stage which resembles the woodlands currently observed in the project area today. As infilling continues herbaceous and shrub densities decline due to diminished resource availability. This process can take place in as little as 100 years on productive sites or can exceed 300 years on less productive sites. The last significant stand initiation event likely occurred somewhere between 1850 and 1890. Photo 1 is of the Wakefield Mesa-Garvin Mesa area circa 1920, the open nature of the juniper woodland suggests that the area was in a mid-seral state with very open woodlands and small stands that did not burn in the event. These open areas were likely occupied by native grasses, forbs, and varying levels of shrubs including sagebrush and mountain mahogany. Photo 2 shows the same area in 2007 where the same area has infilled to the current stand density with approximately 50-60% juniper canopy cover. The photo also points out the majority of the trees within the project area are less than 90 years old.

Photo 1 Paonia Area Circa 1920



Photo 2 Paonia Area 2007



Another interesting observation made from the two photos is that the burn extent of the historical fire is comparable to that of the Wake Fire (1994) in the upper left hand corner of the 2007 photo. However, the burn severity is far greater as evidenced by the lack of individual green trees and unburned islands of trees within the Wake Fire. Research suggests that climactic conditions were comparable in the late 1800's as to those incurred since the mid 1990's. (Eisenhart 2004) With comparable climactic conditions perhaps the two variables that have changed between the two events are greater tree density and the presence of cheatgrass. The greater stand density and fine fuel continuity of cheatgrass may have resulted in the greater burn severity observed in the Wake Fire.

Cheatgrass is the dominant grass understory within the vegetation community associated with the Paonia Fuels Treatments accounting for over 15% of the vegetative understory. It is thought that cheatgrass cover and/or composition rates greater than 15% represent a threshold at which a vegetative community lacks the ability to respond naturally because of the competitive advantage of cheatgrass. Cheatgrass is an annual species that is undesirable, non-native, and provides little soil protection and/or foraging value. Cheatgrass has a competitive advantage over the native plant communities within the landscape due to its ability to rapidly exploit resources compared to native species, abundant seed source, annual growth pattern, dominance within the plant community, and aggressive growth habits particularly in post-fire environments.

The dominance of cheatgrass and other annual plant species creates a situation of increased fire hazard by providing a flashy fuel source that can alter the fire frequency within the landscape. Therefore, once a rangeland is dominated by cheatgrass and the remaining native vegetation (i.e. Juniper and Wyoming big sagebrush) burns, cheatgrass has the opportunity to form a monoculture that readily burns in a shortened time interval essentially type converting the vegetative community to annual rangeland dominated by invasive non-native species.

Environmental Consequences:

Proposed Action: The proposed action will remove approximately 25-50% of the existing juniper canopy by either mechanical or manual means. Because of their high value sagebrush and other woody shrubs will largely be avoided from treatment. Removal of the canopy will essentially reset the vegetation community to a mid successional state which will make additional resources (sunlight, moisture, etc.) available for herbaceous and woody shrub production. This will introduce greater age class diversity and create a more desirable mosaic of herbaceous species composition and establish and improve the vigor of woody shrubs in the area. Removal of the tree canopy will not only inhibit crown fire but present an opportunity to attempt to restore the degraded understory which has largely contributed to the project area's not meeting public land health standards for vegetation communities.

Seeding prior to tree thinning will allow the seeded species to be lightly worked into the soil and, for the portion of the proposal that will be mechanically treated, covered with mulch generated by thinning. The nature by which mechanical equipment scatters the woody debris generated should only result in approximately an inch of fine mulch at the stump and 2-4 inches of coarse woody mulch around the thinned tree. It is not expected that this coarse mulch will greatly inhibit seed germination anywhere but at the stump of the thinned trees. This will present the

best opportunity for seeded species to establish in the cheatgrass dominant environment. The mulch will act to retain soil moisture for a longer period of time which should aid in germination and persistence of seeded species. Additionally, the woody mulch will aid in binding up free nitrogen which cheatgrass readily exploits in its lifecycle. Seeding in this manner presents the best attempt to establish a desirable understory without widespread use of chemicals and has been utilized in the Wolf Park hydro-ax project completed in 2000. While the Wolf Park project area is not cheatgrass free it does have a desirable herbaceous component at cover and composition levels capable of persisting and to some degree competitively excluding cheatgrass. Given that the Wolf Park Project has similar soils, elevation, and is within five miles of the project area there is potential for successful herbaceous development post treatment without the use of herbicide, if climactic conditions are favorable. However, because of the uncertainty surrounding establishing desirable herbaceous ground cover in cheatgrass dominant communities the need to have herbicide treatments is likely. WUI-1 and a portion of WUI-2 will be hand thinned therefore there will be no seed incorporation into the soil and the lack of a mulch bed to provide the benefits for seed establishment described above. Without a reduction in competition from cheatgrass these units will have to be treated with herbicide to provide an opportunity for seedling establishment. Thinning and applying herbicide in the late summer and then seeding in the late fall or early winter on these units will allow for the herbicide to reduce the cheatgrass composition and diminish in potency prior to seeding. This methodology should allow germinating seedlings to establish without diminished fitness from the herbicide the following spring.

Plant response to Plateau varies by species, season, and exposure to the chemical. Generally, warm season species that germinate and grow in late spring and summer are tolerant to imazapic application, while cool season species that germinate and grow in winter or early spring are more commonly intolerant to the herbicide application. Based on field trials (BASF 2004, Monaco et al. 2005) and experimental treatments within Zion National Park (Louie et al. 2005), some native cool season grass species that occur in the project area and are known to be tolerant to application of imazapic at a rate of 8 ounces per acre or more include: needlegrass (*Stipa* spp), needle and thread (*Hesperostipa comata*), Sandberg's bluegrass (*Poa sandbergii*), western wheatgrass (*Pascopyrum smithii*), and bottlebrush squirreltail (*Sitanian hystrix*), some warm season species include galleta grass (*Pleuraphis jamesii*), and blue grama (*Bouteloua gracilis*). Most plants within the project area, with the exception of riparian vegetation, would be sprayed with Plateau. But because the herbicide is highly selective, a minimum of native and seeded vegetation would be affected.

Research conducted in many areas throughout the Great Basin and Intermountain West found that cheatgrass can be reduced by more than 90 percent the first year after treatment (BASF 2003) with 12 ounces per acre application rates in the fall, but there are more non-target impacts to desirable plants at these higher application rates as well. Realistically, it is expected that a 4-8 ounces per acre application in the fall would result in about 80-90 percent control of cheatgrass the first year with declining levels of control the following two growing seasons and no residual herbicide control after 3 years. The release of seeded native plant species from cheatgrass competition coupled with the availability of suitable germination sites and increased soil fertility, should allow seeded species to become established and/or expand their dominance within the

community, thereby increasing their competitive capacity for subsequent growing seasons. As cheatgrass seedbanks are relatively short lived, and most cheatgrass seed either germinates and grows or is not viable after 1 year, the suppression of cheatgrass germination for 1-3 years as a result of the herbicide treatment should provide adequate time for the native plant communities to re-establish in the absence of competition from cheatgrass. Once that native plant community is firmly re-established, it would be more resistant to cheatgrass invasion, although it is likely some cheatgrass will remain in the treated communities.

Long-term, the herbicide treatment would interrupt the grass-fire cycle, and would allow desirable plant communities to establish, regenerate, and persist absent competition from highly competitive invasive annuals. This would preserve the fullest complement of desirable plant species, communities, and ecosystem processes. In the absence of cheatgrass, future fires in the project area would be within the natural fire regime and therefore would be less frequent, smaller in size, and lower in intensity than fires that burn in cheatgrass environments. The primary reasons for this difference are due to later green-up and die-back of native species providing less available dry fuels, and to the discontinuous spacing of fuel and the percent bare ground that naturally exists in the desirable vegetative communities. Additionally vegetative communities will consist of desirable, perennial, native plants that will either allow for the achievement of, or the movement towards meeting of public land health standards for healthy productive plant communities.

No Action Alternative: Under a no action alternative, the sites would continue in their current state of, or trend towards, cheatgrass domination within an early to early mid seral condition that does not meet public land health standards for plant communities because of the dominance of nonnative weeds. An opportunity would be lost for an increase in knowledge for local land management in restoring degraded ecological sites.

Finding on the Public Land Health Standard for plant and animal communities (partial, also see Wildlife, Aquatic, and Wildlife, Terrestrial): Landscapes with cheatgrass domination are not meeting Public Land Health Standards for a healthy and diverse plant community. This is due to the areas having non-native, invasive species that make up a high percentage of the plant species composition, and alter fuel distribution, and nutrient cycling. Thus, these areas are within an artificial early seral/structural stage that is not functioning for a healthy and diverse plant community. Generally problems with perennial warm and cool season grass cover and perennial forb cover indicate that the site has a plant community that cannot provide full energy and nutrient cycling capabilities and habitat values. Problems with low diversity indicate that the genetic material for complete plant community recovery is probably not present, suggesting the site will probably not be resilient to disturbance. Problems with shrub vigor and hedging reduce winter range quality for deer and elk, as well as nesting areas for shrub nesting birds and other species which rely on the shrub component. Pinyon-juniper invasion can indicate that shrub and grass areas are being lost to woodland expansion, although some apparent invasion is necessary for recovery of woodlands following fire or other stand disturbances. These vegetation indicators are more fully described in the North Fork Land Health Assessment. The proposed action seeks to move the project area towards meeting land health standards by improving stand structure reducing the cover and composition of nonnative annuals, and increasing levels of native species.

WILDLIFE, AQUATIC

Affected Environment: Several creeks and ephemeral tributaries in the project area (refer to the Water Quality section) likely support, either year-round or seasonally, cold and warm water species including fishes, amphibians, reptiles, and invertebrates. The North Fork of the Gunnison River (south and downslope from the project area) is an important fishery and supports a variety of amphibians, reptiles, and invertebrates.

Environmental Consequences

Proposed Action: Over the short-term, minimal sedimentation of waterways and tributaries within the project area may occur (see Water Quality section) and may affect aquatic species, particularly in the higher, cold-water systems. Lower elevation, warm water species will generally be better adapted to turbid conditions. Improving watershed cover is expected to provide long-term benefits to water quality, aquatic habitats, and aquatic species. No riparian areas would be treated or disturbed under the proposed action. Minimal to no sedimentation is expected in the North Fork of the Gunnison River as a result of the proposed treatments.

Plateau (imazapic) treatments as prescribed will have no effect on aquatic wildlife. Refer to the Threatened, Endangered, and Sensitive Species Section for a detailed discussion on Plateau effects on plant and animal communities.

No Action Alternative: Large-scale, destructive wildfires are more likely to occur and could result in a denuded landscape, increased sedimentation, and degraded riparian habitat and water quality which would negatively affect aquatic wildlife. If fire did not occur, effects of the current management scenario on aquatic species would be similar to those described for the proposed action.

WILDLIFE, TERRESTRIAL (includes a finding on Standard 3)

Affected Environment: The project area contains elk winter range, severe winter range, and winter concentration areas; and mule deer winter range and severe winter range. Highway 92 south of the project area is identified by the Colorado Division of Wildlife as a common crossing zone for deer and elk. Both deer and elk use the area throughout the summer, spring, and fall, generally with deer at lower and elk at higher elevations. The area also provides seasonal habitat for other regionally common species such as turkeys, black bear, coyotes, mountain lion, bobcat, and a variety of rodents, raptors, and other birds. Several historic red-tailed hawk nests occur adjacent to the project area.

Environmental Consequences

Proposed Action: Effects to terrestrial wildlife species would be similar to those described under the Migratory Bird and Threatened, Endangered, and Sensitive Species Sections. Some

species may be temporarily displaced while equipment or burning crews are working, but would return following treatment. Treated areas may be temporarily unsuitable as habitat for some species. Long term, vegetation diversity and condition should increase (see Vegetation section). Shrub understory and herbaceous vegetation cover should increase following reduction of sunlight competition from interlocking tree crowns in the overstory. Increased shrub vigor and diversity would provide improved habitat for mule deer, elk, turkey, black bear and others. Treatment design includes creating variable habitat patches and spacing to avoid a savannah-like, or “orchard”, effect. Project design features (December 1- April 30 seasonal restriction) will minimize impacts on wintering animal populations, particularly deer and elk, and will minimize displacement of these animals onto adjoining private lands.

Plateau (imazapic) treatments as prescribed will have no effect on terrestrial wildlife. Refer to the Threatened, Endangered, and Sensitive Species Section for a detailed discussion on Plateau effects on plant and animal communities.

No Action Alternative: Vegetation condition and trends would continue, increasing the likelihood of a destructive fire. Habitat and animal diversity and productivity would continue to be limited under current conditions.

Finding on the Public Land Health Standard for plant and animal communities: Proposed vegetation treatments would enhance the productivity of terrestrial habitat and animal communities and would, therefore, meet the criteria for this land health standard.

OTHER NON-CRITICAL ELEMENTS: For the following elements, those brought forward for analysis will be formatted and discussed as shown with the above elements.

Non-Critical Element	NA or Not Present, No Impact	Applicable or Present, No Impact	Applicable & Present, Brought Forward for Analysis
Access			X
Transportation			X
Cadastral Survey	X		
Fire / Fuels Management			X
Forest Management			X
Geology and Minerals	X		
Hydrology/Water Rights	X		
Law Enforcement	X		
Paleontology	X		
Noise			X
Range Management			X
Realty Authorizations			X
Recreation		X	
Socio-Economics			X
Visual Resources			X

ACCESS AND TRANSPORTATION:

Affected Environment: The specific areas proposed for treatment can be accessed from Delta County roads and/or through “one time” landowner permissions; where “one time” access may be only an individual trip or a series of trips. Off-highway vehicle designations within the planning area are “Limited to Existing Roads and Trails” and due to the amount of private land, most of the area is only accessible to the private land owners.

Environmental Consequences:

Proposed Action: Using public (Delta County Roads) access to any proposed treatment will have no impact on either the road or environment with the following conditions:

- Weight limits to any bridge are strictly observed
- Loading or unloading any equipment with cleats (including any dozer or chopper) does not occur on a paved route.
- Existing roads and trails utilized as much as possible. All disturbance associated with project implementation, including access trails, will be scarified, reseeded with the native seed mix, and have physical barriers such as tree branches and or boulders placed at existing routes to avoid the creation of new unauthorized routes.

Using private “one time” access could result in loss of access merely by the whim of a private party and thereby would cause liability to the government if a contract were previously issued and not completed. However, using private “one-time” access creates a tremendous saving in time and expense to secure some type of formal access. The proposed action will temporarily increase traffic on county and private roads within the project area, but only for the duration of the treatment. All necessary precautions will be taken to protect the roads from damage and the creation of any new routes.

Access holders will be contacted and access needs will be coordinated with the respective access holders prior to proceeding with any work.

No Action Alternative: There would be no impacts to either county or private roads under the No Action Alternative.

NOISE:

Affected Environment: The project area is generally characterized as quiet for much of the time. Noise is generated periodically when visitors drive vehicles, ATVs or motorcycles on roads through the area; this is most noticeable during the fall hunting seasons. Additionally, there is year round noise generated from the residences and associated county roads that service them directly adjacent to the project area.

Environmental Consequences

Proposed Action: There would be a short-term generation of noise from equipment, which would be heard in the immediate vicinity, possibly up to a distance of 1 mile. Work would proceed primarily during weekday daylight hours 7am-7pm. Noise would only be for the duration of the project, and would not have an impact beyond project completion.

No Action Alternative: There would not be impacts to noise.

RANGE MANAGEMENT:

Affected Environment: The geographical area affected by the proposed action lies within four BLM grazing allotments:

Stevens Gulch Common #14513

The Stevens Gulch Common Allotment is permitted to graze 81 head of cattle from 6/1 to 6/25 and 35 Cattle from 10/1 to 10/5. It includes 2,260 acres of public land and the permit reflects 100% public land. The active grazing preference is 73 AUMs. The BLM land is not completely fenced and some of it receives little if any use. Cattle are normally moved around to different use areas from year to year.

Currently, the UFO staff has recognized issues regarding plant community composition-cover and some scattered weed infestations, including cheatgrass. These issues are likely related to the invasion of the pinyon-juniper vegetation type (accompanied by cheatgrass) into adjacent grassland/forb communities. Drought and livestock distribution problems are other probable causes.

Upper Terror Creek #14514

The Upper Terror Creek Allotment is permitted to graze 35 head of cattle from 6/1 to 9/30. It includes 650 acres of public land that is grazed in conjunction with a slightly larger amount of private land. The permit reflects 42% public land and the active grazing preference is 59 AUMs.

There are some minor issues regarding the presence of cheatgrass and other scattered weed infestations throughout the allotment.

West Stevens Gulch #14515

This allotment is permitted to graze 80 head of cattle from 7/1 to 8/29. The 1,255 acres of BLM land is managed concurrently with a smaller parcel of private land. Currently, the active grazing preference is 110 AUMs @ 70 % public land. The permittee has “rested” the allotment for 4 consecutive years for conservation reasons, but re-activated grazing in spring, 2009.

Recently, the UFO staff has recognized issues regarding plant community composition and scattered weed infestations; both are likely related to the invasion of gambels oak and pinyon-juniper into open meadows formerly dominated by healthy grassland communities.

Jumbo Mountain #14527

This allotment is permitted to graze 186 head of cattle from 5/15 to 6/23. The allotment includes 5,114 acres of public land managed concurrently with a small area of private land within the combined grazing unit. The permit reflects 99% public land with an active grazing preference of 119 AUMs.

Currently, the UFO staff has recognized issues regarding shrub vigor and plant community composition-cover; all are likely related to drought and the invasion of pinyon-juniper and cheatgrass into formerly open grassland communities.

Environmental Consequences

Proposed Action: Fuels treatments in the allotments discussed above will have immediate impacts to the permitted grazing use. Areas that are treated will be rested for 2 growing seasons, resulting in reduced grazing seasons and potential non-use in some pastures. These issues are normally worked out ahead of time with the permittee by rescheduling a grazing sequence (which would include rest) or locating available grazing in another area. Fencing strategies (portable electric fence) may be used to delineate and protect treated areas. Although these adjustments may be at times difficult for the permittee, feasible solutions are usually found. If necessary, administrative remedies such as grazing decisions can be used to attain resource needs.

Resting the fuels reduction treatments for two growing seasons will enable palatable, perennial plants to become established to the point where they can survive and be competitive under well-managed grazing. A competitive herbaceous plant community would stay in a healthy early/early-mid seral stage and prevent reestablishment and dominance of woody plants for many years. Providing season long rest (i.e. every five years) would ensure that plants are able to rebuild root reserves, increase in size and produce seed periodically, further promoting their vigor. It should also help build up fuel levels, increasing opportunities for use of natural fire to create earlier seral stages across these allotments. Periodic authorization of grazing outside of the time specified on the permit will provide for occasional rest during seasons in which the plants are usually grazed. This strategy (and others mentioned above) would allow plants to complete critical stages in their life cycles, such as producing seed or rebuilding root reserves.

From the standpoint of improved and sustained vegetation health and forage production, the proposed action will help these grazing allotments to move towards improved overall rangeland health.

No Action Alternative: There would not be impacts to range management under this alternative. However, it would result in a lost opportunity to improve rangeland health of the targeted plant communities.

REALTY AUTHORIZATIONS:

Affected Environment: The public land parcels within the area of the proposed treatments do have several existing rights-of-ways on and through them including, but not limited to roads and

powerlines which are owned by public and private parties.

Environmental Consequences

Proposed Action: The proposed actions will not infringe on any pre-existing right. All rights-of-way holders will be contacted and coordinated with prior to any fuels reduction activities occurring. All necessary precautions will be taken in order to protect the rights-of-way from any harm.

No Action Alternative: There would be no impact to realty authorizations under the No Action Alternative.

WILDLAND FIRE/FUELS & FOREST MANAGEMENT:

Affected Environment: The fuels within the area are predominately woodlands dominated by Utah juniper (*Juniperus osteosperma*) commonly with a cheatgrass (*Bromus tectorum*) understory, which is can categorized as a Fire Behavior Fuel Model GR2 and Fuel Model SH7, depending on density of the stand and the amount of cheatgrass. The dense overstory/understory common for fuels in this area has resulted in numerous large wildfires in the vicinity including the Wake Fire (1994), the Fruitland Mesa Fire (1999), the McGruder Fire (2004), and the Wolf Park Fire (2007).

Environmental Consequences

Proposed Action: This treatment has two stages that impact wildland fire/fuels management. First, the thinning stage will separate the individual tree crowns (the horizontal continuity) so that a wildfire with individual tree torching has less opportunity to race from tree crown to tree crown, creating a “crown” fire which is difficult to control. Hand piling of the dead or down wood and debris during this stage will greatly reduce the heavy surface fuels and ladder fuels (the vertical fuel continuity). The second stage will be treatment with herbicide, which will inhibit the growth of non-native cheatgrass. This will be followed with seeding of native species. Cheatgrass is a highly combustible fuel that cures and readily burns earlier in the season than native grasses normally do. Combined with the fact that cheatgrass doesn’t respond to monsoonal moisture in late-July and August like natives do, it subsequently increases the length of fire season into both spring and fall. Native grass/forb or grass/forb/shrub would typically carry only a surface fire of low to moderate intensity in the early season until late-May and again in mid-July into the fall, leaving only a 1.5 to 2 month with a more intense fire season. The presence of cheatgrass in the juniper understory, increases the length of a higher intensity fire season from early May through August, substantially increasing fire risk on this south facing slope. The control of cheatgrass and potential increase of more native, less flammable, grasses and forbs, would reduce the length of the fire season by up to 50%, from 3-4 months down to 2 months or less.

Both the aforementioned stages of treatments enhance the opportunity to slow and control wildfires before they burn eastward toward adjacent private lands. Based on a combination of fire behavior computer modeling and past on-the-ground experience (fires similar to the Wake Fire, the Fruitland Mesa Fire, the McGruder Fire, and the Wolf Park Fire), flame lengths pre-

treatment could be 20-50 feet in length, which is impossible to control, even with air tankers and dozers. Post-treatment flame lengths would be 1-2 feet in the native bunchgrass making control with personnel, engines, and equipment more feasible. Rate of spread (ROS) could actually increase in the treated areas under lower wind speeds (dense pinyon/juniper typically does not carry fire well with winds under 12 mph while continuous grass/forb/shrub fuels tend to carry fire with minimal winds). This is especially true where cheatgrass is left as the dominant fuel type rather than native grasses and forbs. Native grasses and forbs significantly reduce the ROS regardless of canopy cover for two reasons: 1.) bunchgrasses and forbs break up the fuel bed continuity whereas cheatgrass tends to be a continuous a fuel bed, and 2.) the native vegetation will still have some live fuel moisture content where as the cheatgrass would more likely be cured during the height of the fire season. Under higher wind speeds the ROS would equalize both pre- and post-treatment scenarios. Nevertheless, the benefit from the proposed treatment to fire control under higher winds is that flame length is reduced, the risk of a crown fire is reduced, and subsequently fire control is easier in grass/forb/shrub vegetation than in dense pinyon juniper canopies.

No Action Alternative: No action will maintain the status quo of the fuels as a threat to adjacent lives, and property. Individual trees crowns will still be converged with each other and allow for individual torching to move quickly into a crown fire. As mentioned previously, several large fires have exhibited this type of behavior in the North Fork area over the past several years, threatening the communities of Paonia, Hotchkiss, and Cedaredge.

SOCIO-ECONOMICS

Affected Environment: The communities in the North Fork Valley promote the area as one of the largest organic farming regions in Western Colorado. Wineries and a variety of orchards are established in the region. Some of these are certified organic and some are being promoted as all natural products without the use of chemicals (manufactured fertilizer or pesticides).

Environmental Consequences

Proposed Action: In the proposed project area there are several orchards and farms of which some are organic. The herbicide application part of this proposed action has taken into account sensitivities and concerns surrounding these businesses. The BLM Manual H-9001-1 recommends minimum buffer zones in sensitive areas. For aerial spraying the buffer is 100 ft, vehicle spraying is 25 ft and hand application of herbicide has a 10 ft buffer requirement. In the National Center for Appropriate Technology (NCAT 2003) Organic Crops Workbook, which is consistent with the requirements of the National Organic Program, the suggested buffer zone has historically been 25 ft. However, buffer zones may be manipulated to a larger buffer where adjacent land is conventionally managed and sprayed by plane or helicopter. Since the BLMs buffer zone is larger, it is the minimum buffer zone that will be applied to the proposed action (even though buffer zones are normally the responsibility of the organic farmer on setting the buffer inside their property). The EPA tolerance level for herbicide residue is five percent or less to be sold as organic.

With the design features in place, the use of a helicopter, topography, remaining plant material,

trees left standing, and distance from the irrigated agricultural land there should be no damage to any agricultural crop with this proposed action. Also see the background section of this document for Plateau® profile and movement capabilities.

Distance to irrigated agricultural land from treatments

Treatment Unit	Distance in Miles
WUI-1	0.10
WUI-2	0.10
WUI-3	0.28
WUI-4	0.16
WUI-5	0.16
WUI-6	0.17
WUI-7	0.60
WUI-8	0.38
WUI-9	0.27
WUI-10	0.8
WUI-11	0.45

No Action Alternative:

There would be no impacts to irrigated agricultural lands under the No Action Alternative.

VISUAL RESOURCES

Affected Environment: The BLM's visual resource management system was designed, and is used, to help ensure that as proposed man-made features or surface-disturbing activities on public lands are constructed properly considering the existing landscape character and inherent visual resources. The BLM Manual 8410-1 Visual Resource Management defines and categorizes visual resource management classes that provide objectives for these resources as projects are proposed and implemented in the landscape. These Visual Resource Management (VRM) classes are determined through an inventory process described in the manual mentioned above, and are used to provide guidance to BLM and project proponents when contemplating proposed surface disturbing activities. Class I areas are intended to protect an area from visible change, Class II areas allow for visible changes that do not attract attention, Class III areas allow for visible changes that attract attention but are not dominant, and Class IV areas allow for visible changes that can dominate the landscape. The proposed action is located within a Class III area as indicated within the Uncompahgre Basin Resource Management Plan.

Environmental Consequences

Proposed Action: The proposed action was developed and located based on the need to reduce wildfire hazards to minimize the threat of wildfire to some private residences and power transmission lines and increase firefighting capabilities. Visual resources will be moderately modified, the proposed action will modify color and texture yet the action mimics what could naturally occur (i.e. wildfire, insects & disease) therefore the casual observer may notice the changes in color and texture but it will not likely draw attention and VRM III objectives will be met. Furthermore, any disturbed vegetation will return making the action virtually unnoticeable as vegetation matures and woody debris weathers. The proposed action would not dominate the

visual resources therefore maintaining the class setting set for the area.

No Action Alternative: There would be no impacts to visual resources under the No Action Alternative.

CUMULATIVE IMPACTS:

Cumulative impacts (or cumulative effects) are determined by adding the incremental environmental impacts of a proposed action to the impacts generated from other past, present, and reasonably foreseeable future actions within the Area of Influence (AOI). The AOI can vary from project to project and from resource to resource for the same project, depending on the type of project, its size, and the resources affected. For this EA, the area considered for cumulative impacts analysis is the North Fork Land Health Assessment Area located in Delta and eastern Gunnison Counties in west-central Colorado. The LHA area is primarily centered around the North Fork Valley and the North Fork of the Gunnison River.

The proposed action must be assessed cumulatively with all the other activities on private, state and federal lands. The North Fork Land Health Assessment boundary encompasses about 275,000 acres of which 66,124 acres are public land. These public lands are distributed across the area in dispersed blocks and several isolated parcels. The BLM is broken up by large areas of private land which are mainly concentrated where soils and topography are suitable for agriculture or ranching. National Forest Lands occupy most of the higher elevation areas.

Past, Present, and Reasonably Foreseeable Future Actions

Past and existing activities that have impacted area resources include the following:

- livestock grazing activities;
- recreation activities; and
- minerals development (mining and oil and gas); and
- vegetation management activities.

Livestock grazing and recreation

Under the proposed action, there would be a continuation of existing activities such as livestock grazing, recreation and wildlife use in the area. Increases in grazing and recreational pressure are not foreseen. The existing grazing effects (reduction in vegetation height, trampling, soil compaction, etc.) and recreation effects (compaction from vehicles and dispersed camp sites) would remain unchanged. Because most effects from recreation and grazing are minor compared to effects from vegetation management, discussion of cumulative impacts related to reasonably foreseeable activities focuses primarily on the effects of additional vegetation management activities.

Oil and gas development and Coal mining

It is anticipated that the number of oil and gas exploration wells may increase. Currently Gunnison Energy is seeking approval for 16 wells to be drilled within the AOI, SG Interests has

proposed up to 150 wells within the area and Petrox has numerous well proposals under administrative review on National Forest Service Lands. Environmental analysis is currently being conducted for all the projects being considered and to date no final decisions have been made regarding these projects.

The AOI also has three active coal mines with approximately 33,000 acres of federal minerals currently leased. The primary existing disturbances in the area from coal mining include roads, exploratory drill sites, and mining operations. It is anticipated that the future development would include additional disturbances resulting from continued coal mining, exploration and development from the three operating mines in the region.

Cumulative impacts as a result of all these projects would cause the same types of short term impacts to vegetation, soil erosion and increase in weeds as this fuels treatment. However, all projects have strict mitigation measures and are of a short duration. In the long term, there should not be an increase in cumulative impacts due to best management practices that are required.

Vegetation Management Activities

The forest service has two vegetation management projects that will: Promote a diversity of structural stages among the aspen stands within the Leroux Creek and Terror Creek analysis areas, regenerate through commercial clearcutting aspen stands that are impacted by Sudden Aspen Decline (SAD), and increase the patch size of regenerating aspen stands and break up the landscape “patchiness” of past harvest activities. Additionally, in the fall of 2009 the Paonia Ranger District has began to implement an elk and deer winter range habitat improvement project on National Forest System Lands in the Lamborn/Landsend area of the Paonia Ranger District. The purpose of this project is to enhance winter range by increasing the palatability of browse species and increasing grass/forb production, providing openings in pinyon/juniper woodlands, reducing fuels build-up, and providing for a variety of age classes in the mountain shrub / oak and pinyon-juniper communities in this area. Approximately 1955 acres are proposed for treatment by mechanical means (dozer, hydro-axe, roller chop, or similar) and/or prescribed fire to improve forage quality and quantity for deer and elk.

BLM vegetation management in the AOI has primarily focused around wildfire rehabilitation in an effort to curtail cheatgrass domination and limit erosion including the Wake, McGrudder, Wolf Park, Oak Mesa, and Jay fires totaling 6,417 acres since 1994. Mechanical vegetation manipulations in the AOI total 1,947 acres which prior to 1980 primarily focused on forage development for the livestock industry. Since 1998 and the completion of the North Fork LHA much of the vegetation that has occurred in the area has focused on addressing specific land health issues relating to wildlife, fuels, and vegetation problems identified in the land health assessment. BLM in collaboration with the Hotchkiss Fire Department will begin to look at additional vegetation treatments on public lands north of the town of Hotchkiss to address watershed and wildfire concerns in the spring of 2010. The planning area will encompass approximately 5000 acres of public land east of Leroux Creek and west of the Wake fire area. A full range of vegetation management tools will be considered including prescribed fire and mechanical treatments similar to this proposal to treat approximately 20-40% of the project area.

Air quality concerns from the proposed action would be limited to those disclosed earlier in this EA. Cumulatively, the impacts would be short term, and during the time when the project are actively implemented.

Invasive, non-native weeds have the potential to increase. Traffic on roads, livestock grazing, and recreational uses also contribute to the potential establishment of noxious weeds. The proposed action includes provisions specific to the management of the invasive cheatgrass. The project would be monitored for noxious weeds, and noxious weeds would be treated. As a result, the project would not add incrementally to the potential establishment of noxious weeds and does present the potential to greatly reduce the presence and influence of invasive species on vegetative communities.

Project implementation would not occur during the migratory bird nesting and breeding season. Some species could be displaced at other times, such as during the winter or late summer/fall. The forest service thinning could have the same impact. Cumulatively, the impacts are not expected to have a lasting effect on migratory birds. Improved availability of food and shelter for some species would increase after project implementation. Overall, the proposed treatments are expected to improve and expand native habitats and ultimately benefit the majority of terrestrial wildlife species. No sensitive wildlife or plant species are known to occur within the project areas, however surveys will be conducted and if detected such habitats would be avoided therefore no impacts to sensitive species are anticipated. Impacts to wildlife species from herbicide application are expected to be minimal at the rates proposed considering the precautions identified in the proposed action.

Surface water quality within and downstream of the proposed treatment areas is expected to improve as a result of mechanical treatment. Mechanical treatment results in additional watershed surface cover in the form of ground surface litter and increased grass and forb densities. Soil erosion is expected to decline due to increased watershed cover and depression storage from surface disturbance which will reduce the potential for surface runoff and soil erosion, minimizing the sediment yield from these areas. Over the longer term, water quality and soil conditions are be expected to improve slightly over current conditions. Impacts to surface waters from herbicide application are not anticipated given the precautions identified in the proposed action and the binding nature of imazapic to soil particles.

This project would convert the vegetation composition and structure within the project area. Trees would be thinned, resulting in better condition and improved production of residual trees. The diversity and productivity of herbaceous vegetation in the understory would increase. The dominance of cheatgrass is expected to be reduced which will improve the health and resiliency of the vegetative community. The risk of losing the stand and adjacent property to wildfire would decrease. Additionally the potential for the project area to type convert to annual rangeland would be diminished should a wildland fire occur in the project area. Impacts to non-target vegetation from imazapic are expected to be minor at the rates proposed as research has shown; no additional herbicide application for cheatgrass management is anticipated given the extended control nature of imazapic and seeding with desirable vegetation.

Route proliferation is not expected from OHV use within the area because the area is designated “Limited to Existing Roads and Trails” and due to the amount of private land, most of the area is only accessible to the private land owners. No new routes will be constructed as a result of project implementation. Should any part of the project implementation leave the appearance of routes they would be scarified and seeded and blocked off with woody debris and/or boulders to inhibit route proliferation.

Visual resources will be moderately modified, the proposed action will modify color and texture yet the action mimics what could naturally occur (i.e. wildfire, insects & disease) therefore the casual observer may notice the changes in color and texture but it will not likely draw attention and VRM III objectives will be met. Furthermore, any disturbed vegetation will return making the action virtually unnoticeable as vegetation matures and woody debris weathers.

Impacts to private lands and organic farming practices are not anticipated given how imazapic behaves in the environment, the buffers proposed, and the precautions identified in the design features of the proposed action.

Literature Cited:

- American Cyanamid Company. 2000. Plateau herbicide, for weed control, native grass establishment and turf growth suppression on roadsides and other noncrop areas. PE-47015. Parsippany, NJ.
- BLM 2007. Land Health Assessment for the North Fork Area Uncompahgre Field Office. Prepared by BLM Uncompahgre Field Office Montrose, CO.
- BLM. 2007. Final biological assessment for vegetation treatment on Bureau of Land Management lands in 17 western states. Prepared by BLM Nevada State Office. Reno, NV.
- CDPHE. 2006. Colorado Air Quality Control Commission – Report to the Public, 2005-2006.
- CDPHE. 2008. Water Quality Control Commission- REGULATION #93 SECTION 303(d) LIST WATER-QUALITY-LIMITED SEGMENTS REQUIRING TMDLS
- Eisenhart, Karen S. 2004. Historic Range of Variability on Piñon-Juniper Woodlands on the Uncompahgre Plateau, Western Colorado. Geography Department University of Colorado Boulder, CO.
- ENSR. 2005. Vegetation Treatments Programmatic EIS – Imazapic ecological risk assessment final report. Prepared for the USDI BLM, Nevada State Office, Reno, Nevada. Westford, Massachusetts.
- Mazzola et. al. 2008. Effects of Nitrogen Availability and Cheatgrass Competition on the

Establishment of Vavilov Siberian Wheatgrass Rangeland. Ecology and Management. 61:475-484.

NCAT. 2003 NCAT's Organic Crops Workbook A Guide to Sustainable and Allowed Practices.

Novak, Stephen J.; Mack, Richard N. 1993. Genetic variation in *Bromus tectorum* (Poaceae): comparison between native and introduced populations. *Heredity*. 71(2): 167-176.

Novak, Stephen J.; Mack, Richard N. 2001. Tracing plant introduction and spread: genetic evidence from *Bromus tectorum* (cheatgrass). *BioScience*. 51(2): 114-122.

Novak, Stephen J.; Mack, Richard N.; Soltis, Douglas E. 1991. Genetic variation in *Bromus tectorum* (poaceae): population differentiation in its North American range. *American Journal of Botany*. 78(8): 1150-1161.

WSSA. 2007. Herbicide Handbook, 9th Edition. Weed Science Society of America, Champaign, Illinois. 458 pp.

LIST OF PREPARERS AND INTERDISCIPLINARY REVIEW:

<u>Name</u>	<u>Title</u>	<u>Area of Responsibility</u>
Amanda Clements	Ecologist	Wetlands, Ecology
Charlie Sharp	Wildlife Biologist	T&E and Sensitive Species; Terrestrial and Aquatic Wildlife; Migratory Birds
Glade Hadden	Archeologist	Cultural, Native American Concerns
Lynae Rogers	Rangeland Specialist	Invasive Species
Dennis Murphy	Hydrologist	Soil, Water, Water Rights, Wetlands
Teresa Pfifer	Lands & Minerals Staff Supervisor	Realty Authorizations
Kelly Homstad	Fire & Fuels Specialist	Fuels Management & Air Quality
Ken Holsinger	Natural Resource Spec.	EA Lead, Vegetation, Forest Management
Julie Jackson	Recreation Planner	Recreation, Visual Resources, Wilderness
Bruce Krickbaum	Planner, Environmental Coordinator	EA Review, NEPA Compliance
Edd Franz	Recreation Planner	Wild and Scenic Rivers
Melissa Siders	Biological Staff Supv.	EA Review

APPENDIX A.

THREATENED AND ENDANGERED SPECIES OF THE UFO ¹				
SPECIES	STATUS	HABITAT DESCRIPTION ²	DESIGNATED CRITICAL HABITAT IN PROJECT AREA?	POTENTIAL AND/OR KNOWN OCCURRENCES IN PROJECT AREA ³
<i>FISH</i>				
Bonytail <i>Gila elegans</i>	E	Warm-waters of the Colorado River mainstem and tributaries, some reservoirs; flooded bottomlands for nurseries; pools and eddies over rocky substrates with silt-boulder mixtures for spawning; no designated critical habitat in UFO	No	None
Humpback chub <i>Gila cypha</i>	E	Warm-water, canyon-bound reaches of Colorado River mainstem and larger tributaries; turbid waters with fluctuating hydrology; young require low-velocity, shoreline habitats such as eddies and backwaters; no designated critical habitat in	No	None
Razorback sucker <i>Xyrauchen texanus</i>	E	Warm-water reaches of the Colorado River mainstem and larger tributaries; some reservoirs; low velocity, deep runs, eddies, backwaters, sidecanyons, pools, eddies; cobble, gravel, and sand bars for spawning; tributaries, backwaters, floodplain for nurseries	No	None; N.Fork Gunnison River watershed contributes to Gunnison River which harbors known population of razorback sucker and federally designated critical habitat near the town of Delta and downstream to the confluence with the Colorado River
Colorado pikeminnow <i>Ptychocheilus lucius</i>	E	Warm-waters of the Colorado River mainstem and tributaries; deep, low velocity eddies, pools, runs, and nearshore features; uninterrupted streams for spawning migration and young dispersal; also floodplains, tributary mouths, and side canyons; highly complex systems	No	None; N.Fork Gunnison River watershed contributes to Gunnison River which harbors known population of razorback sucker and federally designated critical habitat near the town of Delta and downstream to the confluence with the Colorado River
Greenback cutthroat trout <i>Oncorhynchus clarki stomias</i>	T	Cold water streams and lakes with adequate spawning habitat (riffles), often with shading cover; young shelter in shallow backwaters	No	None; known population in region, but occurs outside the zone of influence/ proposed action area

MAMMALS				
Black-footed ferret ⁴ <i>Mustela nigripes</i>	E	Prairie dog colonies for shelter and food; >200 acres of habitat with at least 8 burrows/acre	No	None
Canada lynx <i>Lynx canadensis</i>	T	Spruce-fir, lodgepole pine, willow carrs, and adjacent aspen and mountain shrub communities that support snowshoe hare and other prey	No	None; mapped potential habitat north of project area at higher elevations, primarily on USFS lands
BIRDS				
Mexican spotted owl ⁵ <i>Strix occidentalis</i>	T	Mixed-conifer forests and steep-walled canyons with minimal human disturbance	No	None; marginal potential habitat but area is outside the current known range for this species
Southwestern willow flycatcher ⁵ <i>Empidonax traillii extimus</i>	E	For breeding, riparian tree and shrub communities along rivers, wetlands, and lakes; for wintering, brushy grasslands, shrubby clearings or pastures, and woodlands near water	No	None; marginal potential habitat but project area is outside the current known range for this species
PLANTS				
Clay-loving wild buckwheat <i>Eriogonum pelinophilum</i>	E	Mancos shale badlands in salt desert shrub communities, often with shadscale, black sagebrush, and mat saltbush; 5200' – 6400' in elevation	No	None; project area is outside the current known range for this species
Colorado hookless cactus <i>Sclerocactus glaucus</i>	T	Salt-desert shrub communities in clay soils on alluvial benches and breaks, toe slopes, and deposits often with cobbled, rocky, or graveled surfaces; 4500' – 6000' in elevation	No	None; project area is outside the current known range for this species
INVERTEBRATES				
Uncompahgre fritillary butterfly ⁵ <i>Boloria acrocnema</i>	E	Restricted to moist, alpine slopes above 12,000' in elevation with extensive snow willow patches; restricted to San Juan Mountains	No	None

¹ U.S. Fish and Wildlife Service. 2009. Federally listed species in Colorado. Official correspondence, February.

² Van Reyper G. 2006. Bureau of Land Management TES [threatened, endangered, sensitive] species descriptions. Uncompahgre Field Office, Montrose, CO, updated 2009/2010. Unpublished document.

³ Assessment based on UFO files and GIS data, partner data, and local knowledge.

⁴ Black-footed ferret believed to be extirpated from this portion of its range.

⁵ Species not known to occur within UFO boundaries, but known to occur in close proximity.

APPENDIX B

BLM SENSITIVE SPECIES OF THE UFO ¹		
SPECIES	HABITAT DESCRIPTION ^{2, 3}	POTENTIAL AND/OR KNOWN OCCURRENCES IN PROJECT AREA ⁴
FISH		
Roundtail chub <i>Gila robusta</i>	Warm-water rocky runs, rapids, and pools of creeks and small to large rivers; also large reservoirs in the upper Colorado River system; generally prefers cobble-rubble, sand-cobble, or sand-gravel substrate	N.Fork Gunnison River watershed contributes to Gunnison River which harbors known populations of roundtail chubs; may occur in project area at lower elevations
Bluehead sucker <i>Catostomus discobolus</i>	Large rivers and mountain streams, rarely in lakes; variable, from cold, clear mountain streams to warm, turbid streams; moderate to fast flowing water above rubble-rock substrate; young prefer quiet shallow areas near shoreline	Potential habitat in project area including Steven's Gulch and irrigation canals
Flannelmouth sucker <i>Catostomus latipinnis</i>	Warm moderate- to large-sized rivers, seldom in small creeks, absent from impoundments; pools and deeper runs often near tributary mouths; also riffles and backwaters; young usually in shallower water than are adults	N.Fork Gunnison River watershed contributes to Gunnison River which harbors known populations of roundtail chubs; may occur in project area at lower elevations
Colorado River cutthroat trout <i>Oncorhynchus clarki pleuriticus</i>	Cool, clear streams or lakes with well-vegetated streambanks for shading cover and bank stability; deep pools, boulders, and logs; thrives at high elevations	None
MAMMALS		
Desert bighorn sheep <i>Ovis canadensis nelsoni</i>	Steep, mountainous or hilly terrain dominated by grass, low shrubs, rock cover, and areas near open escape and cliff retreats; in the resource area, concentrated along major river corridors and canyons	None
Gunnison's prairie dog ⁶ <i>Cynomys gunnisoni</i>	Level to gently sloping grasslands, semi-desert shrublands, and montane shrublands, from 6,000' - 12,000 in elevation	None; outside species current known range
White-tailed prairie dog ⁹ <i>Cynomys leucurus</i>	Level to gently sloping grasslands and semi-desert grasslands from 5,000' – 10,000' in elevation	None; all potential habitat and colonies at lower elevations and valley bottoms, outside project area
Kit fox <i>Vulpes macrotis</i>	Semi-desert shrublands of saltbrush, shadscale and greasewood often in association with prairie dog towns	None

Allen's (Mexican) big-eared bat <i>Idionycteris phyllotis</i>	Ponderosa pine, pinyon-juniper woodland, oak brush, riparian woodland (cottonwood); typically found near rocky outcrops, cliffs, and boulders; often forages near streams and ponds.	Potential habitat, likely present in portions of project area
Big free-tailed bat <i>Nyctinomops macrotis</i>	Rocky areas and rugged terrain in desert and woodland habitats; roosts in rock crevices in cliffs and in buildings caves, and occasionally tree holes	Potential habitat, likely present in portions of project area
Spotted bat <i>Euderma maculatum</i>	Desert shrub, ponderosa pine, pinyon-juniper woodland, canyon bottoms, open pasture, and hayfields; roost in crevices in cliffs with surface water nearby	Potential habitat, likely present in portions of project area
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	Mesic habitats including coniferous forests, deciduous forests, sagebrush steppe, juniper woodlands, and mountain; maternity roosts and hibernation in caves and mines; does not use crevices or cracks; caves, buildings, and tree cavities for night roosts	Potential habitat, likely present in portions of project area
Fringed myotis <i>Myotis thysanodes</i>	Desert, grassland, and woodland habitats including ponderosa pine, pinyon/juniper, greasewood, saltbush, and scrub oak; roosts in caves, mines, rock crevices, and buildings	Potential habitat, likely present in portions of project area
BIRDS		
Bald eagle ⁵ <i>Haliaeetus leucocephalus</i>	Nests in forested rivers and lakes; winters in upland areas, often with rivers or lakes nearby	Winter foraging area, reported sightings in proposed treatment area
American peregrine falcon ⁵ <i>Falco peregrines anatum</i>	Open country near cliff habitat, often near water such as rivers, lakes, and marshes; nests on ledges or holes on cliff faces and crags	Potential habitat, predominantly marginal and predominantly foraging habitat; some breeding possible at lower elevations; no known or historical eyries in vicinity
Western yellow-billed cuckoo ⁶ <i>Coccyzus americanus</i>	Riparian, deciduous woodlands with dense undergrowth; nests in tall cottonwood and mature willow riparian, moist thickets, orchards, abandoned pastures	Potential habitat in riparian stringers, most of which occurs outside, but adjacent to, proposed treatment areas; nearest known occurrence along N. Fork of Gunnison River appx. 1.5 miles from proposed action area
Northern goshawk <i>Accipiter gentilis</i>	Nests in a variety of forest types including deciduous, coniferous, and mixed forests including ponderosa pine, lodgepole pine, or in mixed-forests with fir and spruce; also nest in aspen or willow forests; migrants and wintering individuals can be observed in all coniferous forest types	Potential foraging habitat; no known occurrences or crucial habitat types in project area

Ferruginous hawk <i>Buteo regalis</i>	Open, rolling and/or rugged terrain in grasslands and shrubsteppe communities; also grasslands and cultivated fields; nests on cliffs and rocky outcrops	Potential wintering habitat, no known occurrences
Burrowing owl ¹⁰ <i>Athene cunicularia</i>	Level to gently sloping grasslands and semi-desert grasslands; Prairie dog colonies for shelter and food	None
Gunnison sage grouse ⁹ <i>Centrocercus minimus</i>	Sagebrush communities (especially big sagebrush) for hiding and thermal cover, food, and nesting; open areas with sagebrush stands for leks; sagebrush-grass-forb mix for nesting; wet meadows for rearing chicks	Potential habitat patches; historic records(1979) indicate this species once occurred in the area; however, area is outside the current known range for this species (CDOW data)
Columbian sharp-tailed grouse <i>Tympanuchus phasianellus columbian</i>	Native bunchgrass and shrub-steppe communities for nesting; mountain shrubs including serviceberry are critical for winter food and escape cover	Potential habitat but outside species current known range
Long-billed curlew <i>Numenius americanus</i>	Lakes and wetlands and adjacent grassland and shrub communities	Marginal habitat along waterways, no known occurrences; good habitat along N. Fork of Gunnison River, outside project area
White-faced ibis <i>Plegadis chihi</i>	Marshes, swamps, ponds and rivers	Marginal habitat along waterways, no known occurrences; good habitat along N. Fork of Gunnison River, outside project area
American white pelican <i>Pelecanus erythrorhynchos</i>	Typically large reservoirs but also observed on smaller water bodies including ponds; nests on islands	None
Brewer's sparrow <i>Spizella berweri</i>	Breeds primarily in sagebrush shrublands, but also in other shrublands such as mountain mahogany or rabbitbrush; migrants seen in wooded, brushy, and weedy riparian, agricultural, and urban areas; occasionally observed in pinyon-juniper	Potential habitat, likely present in portions of project area
Black swift ¹⁰ <i>Cypseloides niger</i>	Nests on precipitous cliffs near or behind high waterfalls; forages from montane to adjacent lowland habitats	Potential foraging habitat, no known occurrences and no crucial/ breeding habitat in project area
REPTILES AND AMPHIBIANS		
Longnose leopard lizard <i>Gambelia wislizenii</i>	Desert and semidesert areas with scattered shrubs or other low plants; e.g., sagebrush; areas with abundant rodent burrows, typically below 5,000' in elevation	Potential habitat at lower elevations, no known occurrences
Midget faded rattlesnake ⁸ <i>Crotalus viridis concolor</i>	Rocky outcrops for refuge and hibernacula, often near riparian; upper limit of 7500'-9500' in elevation	Potential habitat, primarily at lower elevations, no known occurrences

Milk snake <i>Lampropeltis triangulum taylori</i>	Variable types including shrubby hillsides, canyons, open ponderosa pine stands and pinyon-juniper woodlands, arid river valleys and canyons, animal burrows, and abandoned mines; hibernates in rock crevices	Potential habitat, primarily at lower elevations, no known occurrences
Northern leopard frog ⁹ <i>Rana pipiens</i>	Springs, slow-moving streams, marshes, bogs, ponds, canals, flood plains, reservoirs, and lakes; in summer, commonly inhabits wet meadows and fields; may forage along water's edge or in nearby meadows or fields	Potential habitat, known occurrences in N. Fork watershed
Canyon treefrog <i>Hyla arenicolor</i>	Rocky canyon bottoms along intermittent or perennial streams in temporary or permanent pools or arroyos ; semi-arid grassland, pinyon-juniper, pine-oak woodland, scrubland, and montane zones; elevation 1000' - 10,000'	Potential habitat, known occurrences in N. Fork watershed
Boreal toad <i>Anaxyrus boreas boreas</i>	Mountain lakes, ponds, meadows, and wetlands in subalpine forest (e.g., spruce, fir, lodgepole pine, aspen); feed in meadows and forest openings near water but sometimes in drier forest habitats	None; outside species current known range
PLANTS		
Grand Junction milkvetch <i>Astragalus linifolius</i>	Sparsely vegetated habitats in pinyon-juniper and sagebrush communities, often within Chinle and Morrison Formation and selenium-bearing soils; elevation 4800' – 6200'	None
Naturita milkvetch <i>Astragalus naturitenis</i>	Cracks and ledges of sandstone cliffs and flat bedrock area typically with shallow soils, within pinyon-juniper woodland; elevation 5400' – 6700'	None
San Rafael milkvetch <i>Astragalus rafaensis</i>	Banks of sandy clay gulches and hills, at the foot of sandstone outcrops, or among boulders along dry watercourses in seleniferous soils derived from shale or sandstone formations; elevation 4500'– 5300'	None
Sandstone milkvetch <i>Astragalus sesquiflorus</i>	Sandstone rock ledges (Entrada formation), domed slickrock fissures, talus under cliffs, sometimes in sandy washes; elevation 5000' – 5500'	None
Gypsum Valley cateye <i>Cryptantha gypsophila</i>	Confined to scattered gypsum outcrop and grayish-white, often lichen-covered, soils of the Paradox Member of the Hermosa Formation; often the dominant plant at these sites; elevation 5200' – 6500'	None
Fragile (slender) rockbrake <i>Cryptogramma stelleri</i>	Cool, moist, sheltered calcareous cliff crevices and rock ledges	None; outside species current known range

Kachina daisy (fleabane) ¹⁰ <i>Erigeron kachinensis</i>	Saline soils in alcoves and seeps in canyon walls; elevation 4800' – 5600'	None
Montrose (Uncompahgre) bladderpod <i>Lesquerella vicina</i>	Sandy-gravel soil mostly of sandstone fragments over Mancos Shale (heavy clays) mainly in pinyon-juniper woodlands or in the ecotone between it and salt desert scrub; also in sandy soils derived from Jurassic sandstones and in sagebrush steppe communities; elevation 5800' – 7500'	Potential habitat, no known occurrences, outside species current known range
Colorado (Adobe) desert parsley <i>Lomatium concinnum</i>	Adobe hills and plains on rocky soils derived from Mancos Formation shale; shrub communities dominated by sagebrush, shadscale, greasewood, or scrub oak; elevation 5500' – 7000'	Potential habitat, primarily at lower elevations; nearest known occurrences about 3 miles from project area concentrated along N. Fork Valley
Paradox Valley (Payson's) lupine <i>Lupinus crassus</i>	Pinyon-juniper woodlands, or clay barrens derived from Chinle or Mancos Formation shales, often in draws and washes with sparse vegetation; elevation 5000' – 5800'	None
Dolores skeleton plant ¹⁰ <i>Lygodesmia doloresensis</i>	Reddish purple, sandy alluvium and colluviums of the Cutler Formation between the canyon walls and the river in juniper, shadscale, and sagebrush communities; elevation 4000' – 5500'	None
Eastwood's monkey-flower <i>Mimulus eastwoodiae</i>	Shallow caves and seeps on steep canyon walls; elevation 4700' – 5800'	None
Paradox (Aromatic Indian) breadroot <i>Pediomelum aromaticum</i>	Open pinyon-juniper woodlands in sandy soils or adobe hills; elevation 4800' – 5700'	None
INVERTEBRATES		
Great Basin silverspot butterfly <i>Speyeria nokomis nokomis</i>	Found in streamside meadows and open seepage areas with an abundance of violets	None

¹ Based on Colorado BLM State Director's Sensitive Species List (Last update: November 20, 2009).

² Van Reyper G. 2006. Bureau of Land Management TES [threatened, endangered, sensitive] species descriptions. Uncompahgre Field Office, Montrose, CO, updated 2009/ 2010. Unpublished document.

³ Spackman SB, JC Jennings, C Dawson, M Minton, A Kratz, C Spurrier. 1997. Colorado rare plant field guide. Prepared for the BLM, USFS, and USFWS by the Colorado Natural Heritage Program.

⁴ Assessment based on UFO files and GIS data, partner data, and local knowledge.

⁵ ESA delisted species.

⁶ Federal candidate species; in accordance with BLM policy and Manual 6840, candidate and proposed species are to be managed and conserved as BLM sensitive species. For the Gunnison prairie dog, candidate status includes only those populations occurring in the "montane" portion of the species' range.

⁷ Species not known to occur in UFO.

⁸ Validity of subspecies designation is in question by taxonomists.

⁹ Species was petitioned for listing and is currently under status review by FWS, and a 12-month finding is pending; i.e., listing of the species throughout all or a significant portion of its range may be warranted.

¹⁰ Species not on BLM Colorado State Director's Sensitive List; included at the Field Office level to account for recent sightings, proximate occurrences, and/or potential habitat.

APPENDIX C.

BIRDS OF CONSERVATION CONCERN OF THE UFO ¹			
SPECIES	HABITAT DESCRIPTION ²	RANGE AND STATUS IN THE UFO ^{2, 3}	POTENTIAL AND/OR KNOWN OCCURRENCES IN PROJECT AREA ⁴
Gunnison sage grouse <i>Centrocercus minimus</i>	Sagebrush communities (especially big sagebrush) for hiding and thermal cover, food, and nesting; open areas with sagebrush stands for leks; sagebrush-grass-forb mix for nesting; wet meadows for rearing chicks	Year-round resident, breeding	See assessment under Sensitive Species Section and Appendix B.
American bittern <i>Botaurus lentiginosus</i>	Marshes and wetlands; ground nester	Spring/ summer resident, breeding confirmed in the region but not within the UFO	Marginal habitat along waterways, no known occurrences; good habitat along N. Fork of Gunnison River, outside project area
Bald eagle ⁵ <i>Haliaeetus leucocephalus</i>	Nests in forested rivers and lakes; winters in upland areas, often with rivers or lakes nearby	Fall/winter resident, no confirmed breeding	See assessment under Sensitive Species Section and Appendix B.
Ferruginous hawk <i>Buteo regalis</i>	Open, rolling and/or rugged terrain in grasslands and shrubsteppe communities; also grasslands and cultivated fields; nests on cliffs and rocky outcrops	Fall/ winter resident, non-breeding	See assessment under Sensitive Species Section and Appendix B.
Golden eagle <i>Aquila chrysaetos</i>	Open country, grasslands, woodlands, and barren areas in hilly or mountainous terrain; nests on rocky outcrops or large trees	Year-round resident, breeding	Known nests in area, including one eyrie (2 nests) within the .25-mile buffer of a proposed treatment on BLM land; this nest was apparently active in 1981, but current status is unknown; numerous sightings in project area over the years
Peregrine falcon ⁵ <i>Falco peregrinus</i>	Open country near cliff habitat, often near water such as rivers, lakes, and marshes; nests on ledges or holes on cliff faces and crags	Spring/summer resident, breeding	See assessment under Sensitive Species Section and Appendix B.
Prairie falcon <i>Falco mexicanus</i>	Open country in mountains, steppe, or prairie; winters in cultivated fields; nests in holes or on ledges on rocky cliffs or embankments	Year-round resident, breeding	Potential habitat, likely present in portions of project area
Long-billed curlew <i>Numenius americanus</i>	Lakes and wetlands and adjacent grassland and shrub communities	Spring/ fall migrant, non-breeding	See assessment under Sensitive Species Section and Appendix B.
Snowy plover ⁶ <i>Charadrius alexandrines</i>	Sparsely vegetated sand flats associated with pickleweed, greasewood, and saltgrass	Spring migrant, non-breeding	None

Mountain plover <i>Charadrius montanus</i>	High plain, cultivated fields, desert scrublands, and sagebrush habitats, often in association with heavy grazing, sometimes in association with prairie dog colonies ; short vegetation	Spring/ fall migrant, non-breeding	None
Yellow-billed cuckoo ⁷ <i>Coccyzus americanus</i>	Riparian, deciduous woodlands with dense undergrowth; nests in tall cottonwood and mature willow riparian, moist thickets, orchards, abandoned pastures	Summer resident, breeding	See assessment under Sensitive Species Section and Appendix B.
Flammulated owl <i>Otus flammeolus</i>	Montane forest, usually open and mature conifer forests; prefers ponderosa pine and Jeffrey pine	Summer resident, breeding	None
Burrowing owl <i>Athene cunicularia</i>	Open grasslands and low shrublands often in association with prairie dog colonies; nests in abandoned burrows created by mammals; short vegetation	Summer/ fall resident, breeding	See assessment under Sensitive Species Section and Appendix B.
Lewis's woodpecker <i>Melanerpes lewis</i>	Open forest and woodland, often logged or burned, including oak, coniferous forest (often ponderosa), riparian woodland, and orchards, less often in pinyon-juniper	Year-round resident, breeding	Potential habitat, likely present in portions of project area
Willow flycatcher ⁶ <i>Empidonax traillii</i>	Riparian and moist, shrubby areas; winters in shrubby openings with short vegetation	Summer resident, breeding	Potential habitat, likely present in riparian areas
Gray vireo <i>Vireo vicinior</i>	Pinyon-juniper and open juniper-grassland	Summer resident, breeding	Potential habitat, likely present
Pinyon jay <i>Gymnorhinus cyanocephalus</i>	Pinyon-juniper woodland	Year-round resident, breeding	Potential habitat, likely present
Juniper titmouse <i>Baeolophus griseus</i>	Pinyon-juniper woodlands, especially juniper; nests in tree cavities	Year-round resident, breeding	Potential habitat, likely present
Veery <i>Catharus fuscescens</i>	Deciduous forests, riparian, shrubs	Possible summer resident, observed recently in Gunnison County, possible breeding	Potential habitat, no known occurrences
Bendire's thrasher <i>Toxostoma bendirei</i>	Desert, especially areas of tall vegetation, cholla cactus, creosote bush and yucca, and in juniper woodland	UFO is outside known range	None
Grace's warbler <i>Dendroica graciae</i>	Mature coniferous forests	Summer resident, breeding	None
Brewer's sparrow <i>Spizella breweri</i>	Sagebrush-grass stands; less often in pinyon-juniper woodlands	Summer resident, breeding	See assessment under Sensitive Species Section and Appendix B.
Grasshopper sparrow <i>Ammodramus savannarum</i>	Open grasslands and cultivated fields	UFO is outside known range	None

Chestnut-collared longspur <i>Calcarius ornatus</i>	Open grasslands and cultivated fields	Spring migrant, non-breeding	Potential habitat at lower elevations in project area where BLM adjoins agricultural lands; no known occurrences, migrants possible
Black rosy-finch <i>Leucosticte atrata</i>	Open country including mountain meadows, high deserts, valleys, and plains; breeds/ nests in alpine areas near rock piles and cliffs	Winter resident, non-breeding	Potential wintering habitat
Brown-capped rosy-finch <i>Leucosticte australis</i>	Alpine meadows, cliffs, and talus and high-elevation parks and valleys	Summer residents, breeding	None
Cassin's finch <i>Carpodacus cassinii</i>	Open montane coniferous forests; breeds/ nests in coniferous forests	Year-round resident, breeding	None

¹ U.S. Fish and Wildlife Service. 2008. Birds of Conservation Concern 2008. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia. 85 pp. [Online version available at <<http://www.fws.gov/migratorybirds/>>].

² Cornell Lab of Ornithology. All about birds: bird guide. < <http://www.allaboutbirds.org/guide/>> Accessed 05/15/2009.

³ San Juan Institute of Natural and Cultural Resources. Colorado Breeding Bird Atlas. Fort Lewis College, Durango, Colorado. <<http://www.cobreedingbirdatlasii.org/>> Accessed: 05/15/2009.

⁴ Assessment based on UFO files and GIS data, partner data, and local knowledge.

⁵ ESA delisted species.

⁶ Non-listed subspecies/ population.

⁷ ESA candidate species.

APPENDIX D

The following are the proposed seed mixes with the “intended” percent and pounds per acre. However, seed must be purchased annually and any given species shown below may/may-not be available for purchase in any given year or may/may-not be unreasonably expensive to include on any given purchase. Seed mixes will maintain the “intent” shown below.

	PROJECT NAME:		Paonia Fuels					Quantity of PLS seed Per Acre	Seeds Per Sq. Foot PLS (BLM req)	
	PROJECT ACRES:		530							
	DATE:		3/24/2010							
				Seeds/Pound				Actual % of mix	PLS lbs of species for project	
Common	Cultivar	Genus	species	(NRCS)	(Granite)	Lbs PLS/acre				
WESTERN WHEATGRASS	X-ARRIBA	PASCOPYRUM	smithii	113000		2	230000.00	5.3	0.09	1060
BOTTLEBRUSH SQUIRRELTAIL	X-VNS	ELYMUS	elymoides	192000		2.5	480000.00	11.0	0.18	1325
INDIAN RICEGRASS	Rimrock	ACHNATHERUM	hymenoides	161920		3	485760.00	11.2	0.18	1590
SAND DROPSEED	X-VNS	SPOROBOLUS	cryptandrus	560000		0.05	280004.00	6.4	0.11	26.5
SLENDER WHEATGRASS	San Luis	ELYMUS	trachycaulus spp. Trachycaulus	133000		1	135000.00	3.1	0.05	530
SANDBURG BLUEGRASS	UP	POA	secunda	104690		0.5	523480.00	12.0	0.20	265
ANNUAL SUNFLOWER	X-VNS	HELIANTHUS	annuus	48919		0.3	14075.70	0.3	0.01	159
ROCKY MT PENSTEMON	X-VNS	PENSTEMON	strictus	48988		0.25	122472.00	2.8	0.05	132.5
NORTHERN (UTAH) SWEETVETCH	X-VNS	HEDYSARUM	boreale	46313		0.3	13893.90	0.3	0.01	159
LEWIS FLAX	Maple Grove	LINUM	lewisii spp. lewesii	293000		0.5	146500.00	3.4	0.06	265
FOUR WING SALTBUCH	X-VNS	ATRIPLEX	canescens spp. Canescens	52000		0.5	26000.00	0.6	0.01	265
WYOMING BIG SAGE	X-VNS	ARTEMISIA	tridentata wyomingensis	1700963		0.1	170096.30	3.9	0.06	53
TOTAL						11	2627282	60.3	1.00	5830

APPENDIX E

A draft version of this document was released to the public for additional comment on April 28, 2010. A total of five responses were received. The comments and response to comments are as follows:

James and Sharon Beard

Comment 1: Support for the project as proposed.

Response: Comment noted.

Dave Bristow

Comment 2: Increased fire danger after project implementation, woody debris being more flammable.

Response: While it is agreed that the mulched vegetation will remain on site, the end result will be that all vegetation shall be reduced to a mulched material with a minimum of 80% of the woody material less than one inch in diameter and six inches long. The mulch shall be scattered evenly across the surface and not remain in piles deeper than six inches. This coupled with the opening in the tree canopy will make it highly unlikely that a crown fire can be sustained within the treated areas, reducing the fire severity in the area if one were to occur. While the woody debris would be available to burn, it would burn as a ground fire (i.e. lower intensity) which is safer for fire crews to attack and easily contained using conventional fire suppression techniques. Additionally, the small size of the woody debris will facilitate accelerated decomposition.

Comment 3: Concerned about negative impacts to private land values as a result of the project.

Response: BLM has been unable to accurately assess whether or not the proposed action will affect land values. Some literature suggests that there is a positive relationship between wildland fire risk and property value. Conversely, no literature was located suggesting that fuel reduction and/or forest thinning projects have a negative effect on land values. It would appear that the proposed action could be perceived as either beneficial or negative to prospective purchasers depending on an individual's thoughts on open versus closed woodlands. One individual may perceive the proposed action as beneficial from a reduced fire risk and greater opportunity to view wildlife utilizing the treatments. Conversely, another individual may perceive the open woodlands as a reduced value because of their desire for seclusion. Given that the proposed action could be perceived in numerous ways and lack of conclusive evidence suggesting positive or negative effects on land values, BLM is unable to accurately conclude how property values may be affected as a result of the proposed action.

An additional consideration is the value of property in the post fire environment. Evidence suggests that property values are decreased in areas of severely burned forest lands. The 2002 Hayman fire in Colorado greatly affected property values in Teller County. Within this county, 114 privately owned properties either had resources lost or homes destroyed. Private property losses were estimated at \$3,367,899. These same properties were valued before the fire at \$5,500,000. This represented a 60% loss in property value the county was not able to collect taxes on. The proposed action is designed to greatly limit the size and or severity of a potential

wildland fire which could also be perceived as a potential positive influence on property values in a potential post fire scenario.

Comment 4: Cheatgrass density three years after the project has been implemented. Use of herbicide has not been effective in other areas.

Response: It is our professional opinion that with successful native seed establishment a vegetation community can be established to effectively limit cheatgrass densities; greatly reducing fire spread potential three years post treatment. The use of herbicide may be necessary to reduce cheatgrass cover and composition to allow for native species to become established and increase in population absent competition from cheatgrass. The techniques presented in the proposed action represent the best available science, professional judgment, and experiences from previous projects dealing with cheatgrass dominated community restoration.

Comment 5: Does not want herbicide on private land.

Response: All the buffers and design features presented in the proposed action will be strictly adhered to in order to prevent unwanted herbicide exposure to adjacent private lands. BLM believes that with the proposed buffers and design features identified there is no potential for either direct or indirect application of herbicide to adjacent private properties.

Comment 6: Cleanup of illegal dump will make the problem worse.

Response: There is no plan to use bulldozers to bury any trash currently present on site. All trash and debris will be hauled offsite and disposed of in an appropriate landfill. To lessen the potential for the site to become worse, BLM will post no dumping signs in the current location and increase law enforcement patrol of the area after cleanup to help curtail illegal dumping.

Comment 7: Concerned about impacts to wildlife.

Response: Impacts to wildlife species in the project area have been analyzed and are presented within the document. Refer to pages 20-23 & 34-35 of the environmental assessment for the analysis of impacts to wildlife species. Additionally, appropriate mitigation for impacts to wildlife species has been incorporated into the proposed action (See page 8-12).

Comment 8: Noise generated during project implementation.

Response: Noise impacts for this project have been analyzed and are presented within the environmental assessment (See pages 36-37). Noise impacts will be short in duration and are expected to only occur during project implementation. After project completion noise levels will return to their current levels. To further limit noise impacts to residents' project implementation will only occur on weekdays between 7am and 7pm.

Campbell Stanton

Comments 9: The project has the potential to lower property values through the loss of aesthetic values.

Response: Refer to comment #3.

Comment 10: Use of mechanical thinning is too destructive, leaving large amounts of slash and damage to adjacent vegetation.

Response: The hydro-ax and/or Fecon equipment identified for use on this project will be equipped with large rubber tires that transmit very low pounds per square inch on the soil surface. Often grasses, forbs, and shrubs are left undamaged after such equipment has operated in a given area. Additionally, these machines are highly selective which provides the capability to mulch an individual tree leaving the adjacent tree undamaged. Refer to comment #2 for discussion of slash in the post treatment environment.

Comment 11: Resultant slash will add to the fuel problem.

Response: Refer to response to comment #2.

Comment 12: Concerned about impacts to wildlife from herbicide and mechanical equipment.

Response: Refer to comment #7.

Comment 13: Would like to see only thinning buffers of 100-200 feet around private property treated by selective hand thinning and cheatgrass removal.

Response: Although some research indicates that in certain fuel types 100-200 feet of defensible space may be adequate to protect structures from a wildland fire, in the pinyon/juniper fuel type this may not be the case. Pinyon/juniper fires have the potential to spot up to a quarter mile out from the main body of the fire with as little as a 10mph wind and it is not unlikely to observe one half mile spotting under higher winds. Given the susceptibility of homes in the Fire Mountain Subdivision (dense pinyon/juniper landscaping, shake shingle roofs, cedar fences, etc) it is essential to minimize the amount of embers that could reach the area. A 100 to 200 foot buffer around private lands would not adequately inhibit a potential wildland fire from spotting or spreading onto private lands, potentially damaging homes, structures, and other property. Additionally, under high winds and extreme fire behavior, a 100-200 foot thinning may only afford firefighters the opportunity to evacuate residences; there would be limited opportunity for firefighters to safely stay on site to defend residences from an approaching flame front. The proposed action significantly increases the opportunity for firefighters to safely protect the homes and property in the Fire Mountain Subdivision and other residences in the area because 1) fewer embers would reach the private lands, resulting in fewer spot fires to control, 2) flame length would be reduced across more of the landscape, allowing for more opportunities to control the fire before it reaches the subdivision, and 3) firefighters could safely remain on site within the subdivision and private lands to protect structures.

Sarah Bishop

Comment 14: P. 2, "BLM is proposing a series of fuel reduction projects near Paonia" . . . Is this "series" what you describe here, or are other projects planned?

Response: Changed to read "BLM is proposing a series of fuel reduction actions near Paonia (described below)" for clarity.

Comment 15: P.2, on the use of Plateau Herbicide: How specific is it to cheatgrass the plant and cheatgrass the seed? You claim it has "minimal to no effect on many native perennial grasses" (etc.), yet further on in that paragraph you state, "In perennial species, the herbicide is translocated into the underground storage organs which prevent regrowth." That does not sound like a minimal effect to me.

Response: Plateau is most effective as a preemergent for cheatgrass. Shortly after germination the herbicide acts on the plant as described on page 2 of this document. Plateau can be effective on cheatgrass that has already germinated but must be applied before the plants begin to develop the second leaf. Plateau is specific to cheatgrass and other invasive annuals at the application rates prescribed. The product label states that the herbicide can be effective on perennial species at much higher rates 8-12oz/acre: double or triple the rate prescribed for this project. At the prescribed rates for this project, effects on perennial species should be minimal. Text was changed to reflect and clarify this in the document.

Comment 16: P. 5, re WUI - 1 area: What time of year would you thin the trees? When would you aerially seed? How many trees per acre is 40 to 60 BAF?

Response: Text clarified to state that thinning would occur in summer or early fall, seeding would then follow in late fall/early winter. BAF is a standard measurement used to describe tree densities. It can be difficult to quantify number of trees that will remain in a 40-60 BAF prescription since it is variable based on the diameter of the tree boles that remain. It can be thought of as the combined surface area (square feet) of all tree diameters at 4.5 feet tall. If the stand is mostly small trees, there will be more trees/acre remaining. Conversely, if the stand is largely large diameter boles then there will be less trees/acre remaining. Added a quantifier of approximately 80-100 trees/acre to the text, but it must be recognized this will be variable dependent upon current stand conditions. The important end objective here is to achieve the 15-20 foot canopy spacing.

Comment 17: P. 5, re WUI - 2 area: If you thin the trees mechanically (when?), leaving the chips as a mulch on the ground (I assume), after re-seeding (when?), won't the mulch prevent germination? If you decide to use the herbicide to control cheatgrass "the following fall", how will that affect the young plants that have emerged from your re-seeding?

Response: Text clarified to state treatment would occur summer/early fall. The mechanical equipment desired for this project typically scatters the mulch. Mulch can be thickest right at the stump with about 2-6 inches in depth; in a two foot radius around the stump outside of that diameter the mulch is typically less than 2 inches in depth. Past experience suggests that at these depths the seeded species are capable of germinating and persisting. The herbicide label, current research, and past experience (see pages 31-33) suggests that by using herbicide, if necessary, the following fall after the seeded species have had an entire growing season to establish, seeded native species can persist after application of Plateau at the rate proposed. Some decreased fitness may occur but mortality is not expected after the seeded species recover they will be able to flourish absent competition from cheatgrass.

Comment 18: P. 6: How will you thin the trees in WUI-3 and 4?

Response: Text (EA pg 6) states that thinning will be accomplished with mechanical equipment in this case hydro ax and/or Fecon.

Comment 19: P. 7: On WUI-7 and other areas, is it not a waste of seed if you don't deal with the cheatgrass first? **[The limiting factor on any project such as the proposed is the funds available. You have costs for labor, equipment and materials - namely Plateau herbicide and native seeds. The availability and cost of seed is probably the most unpredictable.]**

Without adequate cover of native seed, native landscape restoration will probably fail. If the cheatgrass is not removed, it will likely choke out the natives. You need to address these two issues more clearly.]

Response: See Vegetation analysis (EA pages 28-33) for discussion on concept for dealing with cheatgrass. Based on analysis and monitoring, and as stated in the WUI-7 discussion, if cheatgrass is in excess of 15% cover then the site would be treated with Plateau to alleviate competition to give seeded species opportunity to establish and expand populations.

Comment 20: P.11: "An approved burn plan would be completed prior to implementing any phase of a prescribed fire." This is the first time any mention is made in the EA of prescribed fire. I would expect a lot more explanation on such an approach should you have any thought about using it in this fuels reduction plan.

Response: WUI-1 action #4 (EA page 5) states that hand piles will be burned. This is a prescribed fire action which requires an approved burn plan and smoke permit. A burn plan and smoke permit will be developed and approved based on current conditions before prescribed burning would take place.

Comment 21: P. 12: You decided against thinning the trees by traditional methods, except in two areas, because "it would fail to achieve the appropriate canopy spacing . . ." etc. What is the appropriate canopy spacing in the mechanically thinned areas? I think if you would state this as number of trees per acre it would be more meaningful. And why not thin to appropriate canopy space in WUI -1 and 2?

Response: Also see response to Comment 16 above. The alternative presented here desired to only remove one fourth to one third of the existing trees which would fail to achieve appropriate canopy spacing. This prescription would only achieve 5-15 foot canopy spacing which would present a greater chance for crown fire in winds in excess of 25 mph. BLM has chosen to incorporate this prescription in WUI-1 & 2 around the Fire Mountain subdivision because of the residents close proximity to the treatment units and their desire to not have such drastic thinning adjacent to their back yard (this is a response to public comment). While this prescription is not ideal for inhibiting crown fire under the most extreme conditions it does lessen the likelihood of crown fire under less extreme conditions i.e. winds less than 20mph and humidity greater than 10%. Text has been modified to incorporate approximate number of trees/acre throughout the proposed action.

Comment 22: P. 18: The Wake Fire was in 1994. My recollection was that the Stucker Mesa fire was in 2006. (To say approximately 2005 is a little ridiculous. It was either in 2005 or 2006. Check your records!) The rest of the final paragraph makes it sound like the area burned in 2006 (or 2005) was re-seeded. It wasn't. Only monitoring plots were treated and some re-seeded. See your own report on the Stucker Mesa Burn, #C19K.

Response: Text has been modified with exact dates, BLM records indicate that all BLM acres burned by the Stucker Mesa fire were seeded. Only trial plots were treated with herbicide, acetic acid, and grazing.

Comment 23: P. 19, regarding re-establishment of native perennials after treatment with Plateau: Why re-seed prior to killing the cheatgrass? Do you believe the natives will re-establish themselves after the area is treated with Plateau, even if no re-seeding effort is made?

Response: BLM professional opinion and experience indicates that seeding prior to dealing with the cheatgrass provides the best opportunity to incorporate the seed into the soil during mechanical thinning and then cover with mulch generated from thinning activities. It presents the best opportunity to have seeding success without the forgone conclusion of using herbicide, of which the community is not in favor. The use of Plateau, if necessary, the following fall will allow native species one full growing season to develop. The use of the herbicide, if necessary, at the prescribed rate would not kill desirable species and release them from competition with cheatgrass, allowing population expansion. Also see response to Comment 15 above.

Comment 24: P. 29: Thanks for publishing these two photos. They should be sent to every landowner in the area where the juniper forest is now thick. We tend to think the current landscape where we live is the natural one. We need to be disabused of that belief in many instances.

Response: Comment noted.

Comment 25: P. 30: The Wake Fire was in 1994. You claim that the presence of cheatgrass caused the Wake Fire to burn more completely than fires that burned in the area in the 1800s. While cheatgrass is a likely contributing factor to the severity of that fire, I believe the lack of fire in that landscape for at least 80 years was also a contributing factor. On our property, there was precious little understory vegetation - cheatgrass or otherwise - beneath the junipers prior to the fire. The trees had grown so thickly most everywhere that there was no way a canopy fire would not consume them all totally. I suggest you add emphasis to the thickness of the juniper growth due to lack of fire as a major contributing factor to wildland fuels buildup.

Response: Text has been modified to incorporate that fact that tree densities were greater in 1994 and that this also contributed to greater burn severity.

Comment 26: P. 30: Final paragraph sounds good. My only question is whether the mulch will be too thick to allow seed growth.

Response: See response to comment #17.

Comment 27: P. 31: The end of the first paragraph is a good summary. I would have liked to have known that earlier in the document.

Response: Comment noted, entire paragraph has been added to the proposed action to provide additional clarity to the proposed action.

Comment 28: P. 31: So what are some cool season species? They may not be part of our native ecosystem, but your not giving at least a few examples begs my question.

Response: All species listed in the paragraph with the exception of galleta grass and blue grama are cool season species and are a part of the native ecosystem within the project area.

Western Slope Environmental Resource Council

Comment 29: BLM should make efforts to ascertain whether some non-herbicide cheatgrass treatment could be used in at least some of the proposed treatment areas. As part of the proposed fuels treatment project we (WSERC) would like the BLM to set aside some areas to study the effects of cattle grazing over several years. Given the potential problems with large scale herbicide use, grazing, whether by cattle or goats, should be studied as a possible alternative.

Response: The small grazing trial at Stucker Mesa further exemplifies the problems and intense management required to properly utilize livestock for weed management. The trial was a small (1 acre +/-) enclosure in which the electric fencing proved impossible to maintain. Fencing was not functional after the first grazing rotation: fencing was either taken down by the cattle or by other events. Additionally, the electric charger was removed from the trial area and not returned to the BLM. While BLM recognizes that money could be generated from the authorization of the AUMs for such a practice, the costs for managing such practices far exceed revenue generated. To effectively conduct such intense grazing at even a fifty acre trial would equate to cost for fencing and labor to move the fencing as the livestock move through the trial area coupled with BLM costs for monitoring and oversight. BLM believes that there would be greater costs per acre to effectively and successfully implement a cheatgrass management program with livestock than can be accomplished with herbicide treatments. Also, control of treatment areas would be greater with the herbicide treatments. Scientific evidence suggests that intensive livestock grazing can reduce cheatgrass abundance; however BLM is unaware of successful implementation at a landscape scale. Given the costs of implementing such an alternative and the uncertainty of success, herbicide applications to manage cheatgrass populations would appear to be a more scientifically sound and cost effective approach as evidenced by Zion National Park and other landscape level projects in the intermountain west.

Another problem with effectively implementing an intensive grazing practice is that there are not currently water sources necessary to hold livestock within any one grazing paddock. Water would have to be hauled to the 5-10 acre enclosures while livestock are present, which will require vehicular access off of existing routes. Increased routes in the project area were identified during scoping as not being desirable as a result of the proposed action. Furthermore, to adequately manage intensive grazing will require daily or at a minimum every other day visitations by the BLM rangeland management specialist to ensure timing and intensity are not exceeded. This would impart an undue burden upon an already understaffed BLM range staff. Current research suggests that to effectively reduce cheatgrass such grazing practices need to be conducted for a minimum of three years. Such practices would further increase costs to the BLM and further burden an already thin staff.

The visit made to Mr. Wolcott's intensive grazing practice, which is at comparable elevation and aspect as the proposed action, suggests qualitatively that cheatgrass was somewhat reduced compared to adjacent BLM lands but there was also a marked increase in alysium, jointed goat grass, and Russian Knapweed, other invasive and competitive weeds. BLM does not believe that trading one invasive alien weed species for another meets the intent of Public Land Health Standards. Concerns still remain regarding the practicality of establishing a desirable vegetation community under an intensive grazing strategy, since livestock have a tendency to seek out and favor perennial grasses particularly as forage quality declines in cheatgrass. The BLM does acknowledge that Mr. Bishop's operation has been successful at managing cheatgrass

populations while favoring desirable vegetation. However, it is important to point out that the Bishop example presents the perfect scenario of in place fencing, available water, higher elevation, greater annual precipitation, and a more favorable aspect as well as continuous around the clock oversight of the forage utilization by the Bishops. It is unrealistic to expect such success for the proposed action given the lower elevation, lack of in place fencing, lack of available water sources, and landscape scale of the proposed action.

Comment 30: The Stucker Mesa study also failed to convincingly ascertain whether acetic acid can control cheat grass. A single application caused dieback with subsequent regrowth. But local experience suggests that several treatments are needed for cheat grass control. We wish that reapplications had been done in successive years, as was done for Roundup. The acetic acid study should also be redone with reapplications to determine whether acetic acid does or does not control cheat grass with repeated applications.

Response: The Stucker Mesa study suggested in the first year a 76% increase in cheatgrass cover above pretreatment conditions. Comparatively, the single glyphosate application showed a 69% decrease in cheatgrass cover over the same time period. On the ground observation suggested that the acetic acid merely burned the tops off of the cheatgrass individuals as well as other perennial grass species (acetic acid is not selective and will harm a broad spectrum of plants). Cheatgrass plants were then able to regrow and produce seed that year, thus facilitating the increase in cover observed. Based on these data and on the ground observations it was determined that acetic acid is not an effective herbicide for cheatgrass management. Based on the Stucker Mesa study it would appear that acetic acid would need to be applied a minimum of two times a year for two to three years to achieve what one application of glyphosate accomplished. At the landscape scale of the Paonia Fuels project this would have to be accomplished through aerial application, greatly increasing costs, exposure to the pilots performing the task, as well as greater damage to non-target species. Another concern with repeated acetic acid applications is that in the Stucker Mesa study in the acetic acid treatment there was a 62% decline in native perennial grasses. Repeated applications of acetic acid may further reduce the abundance of native perennial grasses. BLM believes that after one application of acetic acid and herbicide that the data would suggest that the herbicide application is a more economic and effective tool to manage cheatgrass degraded rangelands. Additionally, a review of the literature failed to identify a project where acetic acid was applied at the landscape scale to effectively manage cheatgrass degraded rangelands.

Comment 31: Although we have reasonable confidence in the BLM's ability to assess risk to non-target species, there is reason to be cautious. An herbicide Fact Sheet published in the Journal of Pesticide Reform (Fall, 2003, vol. 23 pp. 10-14) cites concerns with imazapic, the active ingredient in Plateau, including reports of anemia and muscle degeneration in experimental dogs, thyroid tumors in rats, and decreased survival in ducklings and embryonic quail. More concerning for the proposed application is the toxicity of imazapic to nontarget plants in doses as low as .007 ounce per acre. The Fact Sheet says, "Researchers at the University of Minnesota studying the effects of imazapic treatment on the establishment of five grass species and a prairie wildflower mix found that "injury [of the grass species] with imazapic was pronounced, and that use of no herbicides "resulted in higher species diversity and increased stands of wildflowers" compared to most of the imazapic treatments tested.

Response: The Fact Sheet published in the Journal of Pesticide Reform (Fall, 2003, vol. 23 pp. 10-14) cites several standard tests required for pesticide registration however the Fact Sheet fails

to disclose the duration and levels of exposure to imazapic. In the EPA study, cited by the Fact Sheet, the dogs were administered imazapic in their diet at concentrations of 0 (control), 5000, 20,000, or 40,000 ppm for 52 weeks. This EPA study found 5000 ppm for 52 weeks was the Lowest Observed Adverse Effect Level (LOAEL) for dogs who showed signs of anemia and muscle degeneration. Based on measured food consumption, this dietary concentration corresponded to an average daily dose of 137mg/kg/day in males and 180mg/kg/day in females.¹ The proposed action calls for a 4oz/acre application rate of Plateau or 0.063 lb active ingredient/acre equivalent to approximately 28600 mg/acre. Considering this application rate, a dog would have to consume all vegetation and soil applied with Plateau over 208 ft² per kg of his/her body weight each day for 52 weeks to approach the LOAEL. This is neither expected nor realistic.

The statement regarding increased thyroid tumors in rats would appear to be misleading, as well. The EPA document, cited by the Fact Sheet, states that “At the highest dose levels tested (20,000 ppm, limit dose), no treatment related effects were observed. Also no treatment related increase in tumors of any kind was observed at any dose level. Increased incidences of C-cell adenomas and carcinomas in the thyroid gland of high dose male rats were determined to not be of concern because the increases were not statistically significant by pair wise comparison to the control group and the incidences did not exceed the maximum percent incidences in the historical control data.”¹

¹ <http://www.epa.gov/pesticides/chemical/foia/cleared-reviews/reviews/129041/129041-012.pdf>

Regarding decreased survival in ducklings and embryonic quail, the Journal of Pesticide Reform fact sheet states that “These effects occurred at all but the lowest dose level tested in this study. In a similar study of quail, the number of live embryos was reduced at the highest dose level tested”. It is important to note that these effects were observed when Bobwhite quail were fed 1,950 ppm imazapic (equivalent to 170 mg/kg BW-day) in their diets for a period of 22 weeks or more, and in mallards, adverse effects were demonstrated at dietary concentrations of 1,300 ppm (equivalent to a dose of 130 mg/kg BW-day) over the same time period. Thus for similar effects to occur as a result of the proposed action bobwhite quail would have to consume all vegetation and soil treated with Plateau across 258 ft² per kg of body weight daily for a minimum of 22 consecutive weeks. For ducks to also see similar effects an individual would have to consume 197 ft² per kg of body weight daily over the same time period. Considering the high doses required for such effects to occur it is highly unlikely that such defects would be possible as a result of the proposed action. The same studies cited by the Journal of Pesticide Reform were the scientific basis for both the BLM and US Forest Service risk assessments which state that Imazapic (Plateau) is biologically safe when applied as directed.

The fact sheet published by the Journal of Pesticide Reform cites a study in which only agricultural annuals were observed to have damage in doses as low as .007 ounce per acre. It is not surprising that such observations were made since the herbicide is effective at inhibiting annual plant photosynthetic pathways. Because cheatgrass is an annual this is the very essence of why Plateau has proven to be effective at inhibiting cheatgrass growth. The University of Minnesota study cited by the Journal for Pesticide Reform fails to consider the full results from that study. While imazapic injury to warm season grasses was pronounced, these observations were for imazapic applications at rates much higher than is recommended for the proposed action. The study further states that “The 0.0625 lb (4oz/acre) postemergence rate appears to be

the best use rate for both preemergence and postemergence applications of imazapic for indiangrass, big bluestem, and little bluestem. As noted for the performance of imazapic on weed control, the 70 DF formulation of imazapic also appeared to cause less desirable warm season grass injury compared to the same rate of imazapic applied as a 2L formulation. The no herbicide, clip as needed, and oat companion crop clipped as needed treatments did not result in herbicide injury, however the competition from annual weeds did significantly impact warm season grass stand establishment and did cause lingering growth reduction of desirable grass seedlings that did establish. Overall, competition from weeds from not using imazapic was more detrimental to establishment of warm season grasses, except switchgrass, than was desirable grass species injury from the use of imazapic.” (Becker et al 2001) As stated in the EA (pg 9) based on field trials (BASF 2004, Monaco et al. 2005) and experimental treatments within Zion National Park (Louie et al. 2005), some native cool season grass species that occur in the project area and are known to be tolerant to application of imazapic at a rate of 8 ounces per acre or more include: needlegrass (*Stipa* spp), needle and thread (*Hesperostipa comata*), Sandberg’s bluegrass (*Poa sandbergii*), western wheatgrass (*Pascopyrum smithii*), and bottlebrush squirreltail (*Sitanian hystris*), some warm season species include galleta grass (*Pleuraphis jamesii*), and blue grama (*Bouteloua gracilis*). These observations are consistent with observations made in experimental field trials using Plateau within the Uncompahgre Field office. At the rate prescribed in the EA BLM believes that impacts to non-target plants will not be substantial, there will be some initial decrease in plant fitness and reproduction but as Plateau concentration breaks down and perennial species recover they will be able to thrive absent competition from cheatgrass increasing in cover and composition to a level capable of competitively excluding cheatgrass.

Comment 32: Before application the BLM needs to look into whether the high affinity of Plateau for runoff is a threat to aquatic species. We ask 1) what scientific evidence verifies that a 100-foot buffer is enough, given runoff potential and the high sensitivity of some non-target species to very low concentrations of imazapic, and 2) should this buffer also apply to ephemeral waters? We believe it should. We appreciate that “Gullies and untreated islands would be avoided to ensure that herbicide does not reach open water systems and or riparian vegetation communities.”

Response: 1) A thorough search of the literature constituting the best available science suggests that “Imazapic is moderately persistent in soil, but has only limited mobility”. (Tu *et al* 2001) As stated on page 2 of the EA, Imazapic has limited horizontal mobility in soil, and generally moves just 6 to 12 inches, although it can leach to depths of 18 inches in sandy soils. Soil binding (adsorption) is a complex function of soil pH, texture, and organic matter content. Imazapic adsorption to soil may increase with time and field studies do not indicate any potential for imazapic to move with surface water. Imazapic does not volatilize from the soil surface and photolytic breakdown on soils is negligible. The major route of imazapic loss from soil is through microbial degradation (WSSA 2007; American Cyanamid 2000). Field studies indicate that Imazapic remains in the top 30-45cm of soil. Field studies do not indicate any potential for imazapic to move with surface water. (WSSA 2007) Ecological risk assessments (ENSR 2005 and BLM 2007) indicate for imazapic that Surface Runoff – At the maximum application rate, acute risk to non-target aquatic plants in the pond may occur when herbicides are applied at the maximum rate in watersheds with sandy soils and at least 25 inches of precipitation per year (RQs ranged up to 4.34), in clay or clay/loam watersheds with at least 50 inches of precipitation per year (RQs ranged up to 7.51), and in loam watersheds with at least 100 inches of

precipitation per year (RQs ranged up to 1.97). Minimal acute risk to non-target aquatic plants in the pond may occur when herbicides are applied at the typical rate in watersheds with clay soils and at least 150 inches of precipitation per year (RQs ranged up to 1.72).; chronic risks to non-target aquatic plants in the pond may occur in watersheds with sandy soil and annual precipitation of 25 inches or greater. Essentially no risks were predicted for non-target terrestrial plants, non-target aquatic plants in the stream, fish, aquatic invertebrates, or piscivorous birds. An analysis of the soils present in the project area suggests that they are loamy in nature with annual precipitation ranging between 14-17 inches/year. Based on the soils, annual precipitation, and application rate far below the maximum rate it is highly unlikely that there are acute risks to non-target species from runoff as a result of the proposed action. Given the scientific evidence presented BLM believes that a 100 foot buffer provides an extremely cautious buffer to prevent runoff which could impact non-target species.

2) BLM believes that the 100ft buffer should not be applied to ephemeral drainages because doing so would essentially negate the effectiveness of the herbicide to control cheatgrass and allow for the establishment of desirable perennial vegetation capable of meeting Land Health Standards and limiting fire spread. Without adequately reducing the cheatgrass population, seeding with desirable native species may not work and the thinned areas will replace one fuels situation with another. The proposed action does not call for application directly into ephemeral drainages “Gullies and untreated islands would be avoided to ensure that herbicide does not reach open water systems and or riparian vegetation communities (EA page 6).” Given this precaution and the information presented above there is little chance for imazapic to be introduced into perennial waters or ponds.

Comment 33: This suggests the type of monitoring we would like to see, but should “wildlife enclosures” be “wildlife exclosures”?

Response: Text changed accordingly.

Comment 34: One important issue not discussed in the Draft EA is subsequent management in years after treatment. Conversations with Ken Holsinger have indicated that treatment with Plateau may be necessary every few years on an ongoing basis. If this turns out to be the case, it is even more important for the BLM to carry out well-done studies on grazing, acetic acid, and other possible alternatives to herbicide use.

Response: The proposed action seeks to develop a desirable perennial vegetation community capable of competitively excluding cheatgrass. This end result, coupled with sound management of subsequent land use activities, will effectively negate the need for follow up herbicide applications. It is not the desire of the BLM to enter into a long term cheatgrass management program using herbicides. BLM shares WESRC’s concerns about continued application of herbicides. By using adaptive management principles BLM will monitor the project to determine whether or not objectives have been met. Should the proposed action prove to be unsuccessful at curtailing cheatgrass populations to the desired objective of less than 15% cover, a full range of viable, cost effective, landscape scale alternative approaches would be explored and may result in additional proposed actions in the future. There are a number of additional tools being developed that may be useful in maintaining the objective of <15% cheatgrass cover in the future including a head smut called by scientists as “Black Fingers of Death” and soil bacteria which inhibits root growth and appears to be somewhat specific to cheatgrass. In either case these

potential tools are 5-10 years away from broad application. Any follow-up treatments using herbicide or other tools would be subject to analysis and public input under NEPA.

Comment 35: In the final EA we would like to see analysis of how future grazing will be managed to avoid exacerbating the problem.

Response: See design features page 12 of the EA.